Groundwork | ANTENG VIBRO HAMMERS

ANTENG MACHINERY

PILING EQUIPMENT

Engineered for foundation works,
civil infrastructure and heavy piling applications.

PRODUCT FAMILIES

- NF-series Vibrator
- HF-series Vibrator
- RF-series Vibrator
- Power Pack
- Clamping Devices
- Excavator-mounted Vibrator
- Leader-mounted Vibrator
- Hydraulic Impact Hammer
- Hydraulic Vibroflot
- Drill Drive

Parameters, equipment selection and operating principle.

Ensuring top performance.

Choosing the right machine is crucial for the economic and technical success of vibratory driving. In order to find the most suitable equipment, we offer our customers individual support that takes into account all relevant factors, i.e. the site conditions plus the geological and engineering requirements.

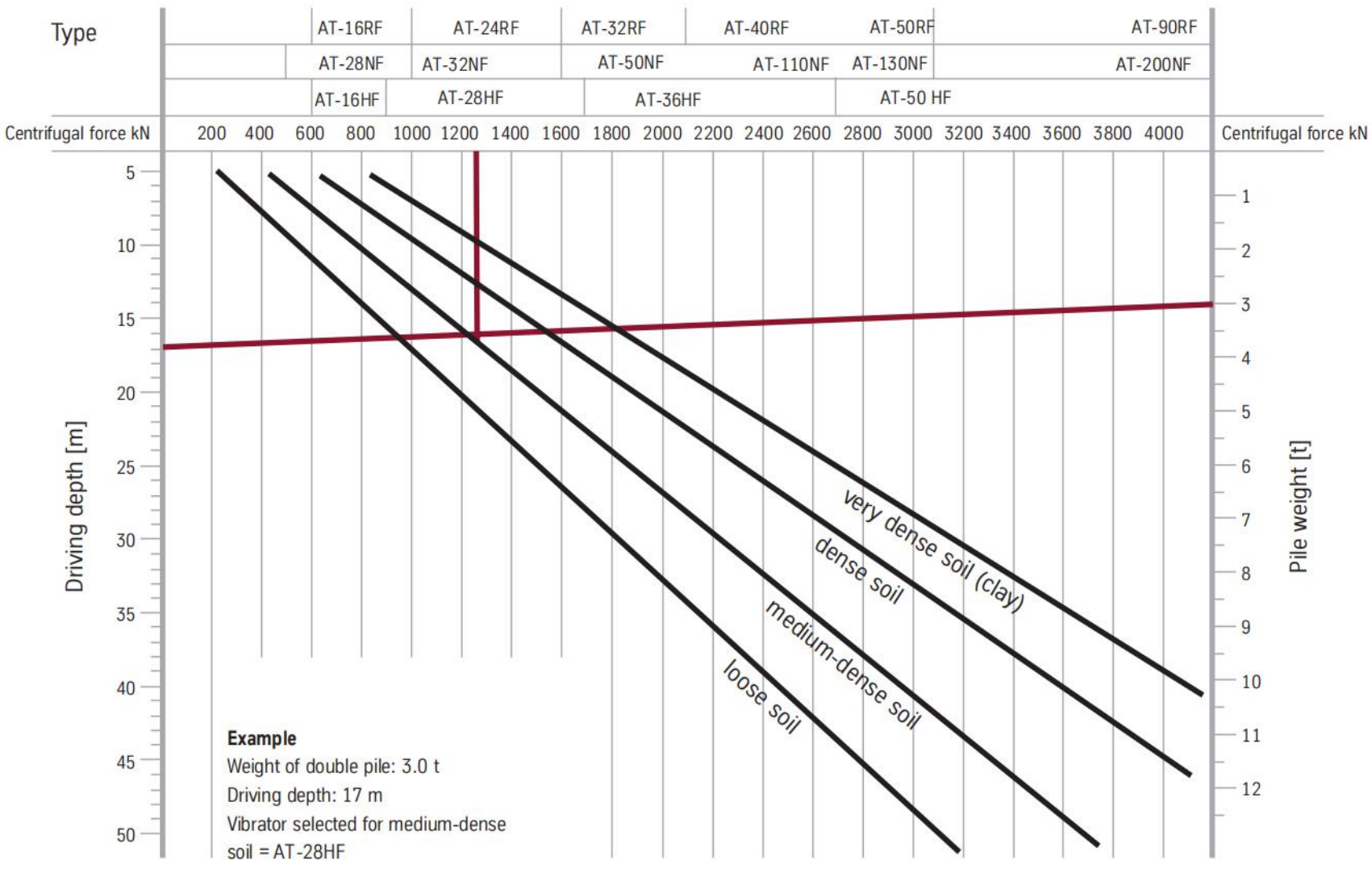
Parameters

Selecting a suitable vibrator mainly depends on the size and weight of the pile section, the embedment depth and the type of soil. Basically, the centrifugal force and amplitude must be selected so that the skin friction and tip resistance between the pile section and the surrounding soil can be overcome.

Equipment selection

The chart below helps users select the right vibrator or determine the required centrifugal force based on soil conditions, pile weight, and driving depth.
The use of additional equipment, e.g. water-jetting or pre-drill units can help to achieve much better driving performance with the same size of unit or centrifugal force of the vibrator.
The power pack must be powerful enough to generate the moment needed to maintain the centrifugal force of the vibrator, even in difficult ground conditions. The drive output should be 2-3 kW for every 10 kN of centrifugal force.
Our advisers use numerical simulation software for selecting equipment to suit the soil parameters and pile section data exactly.

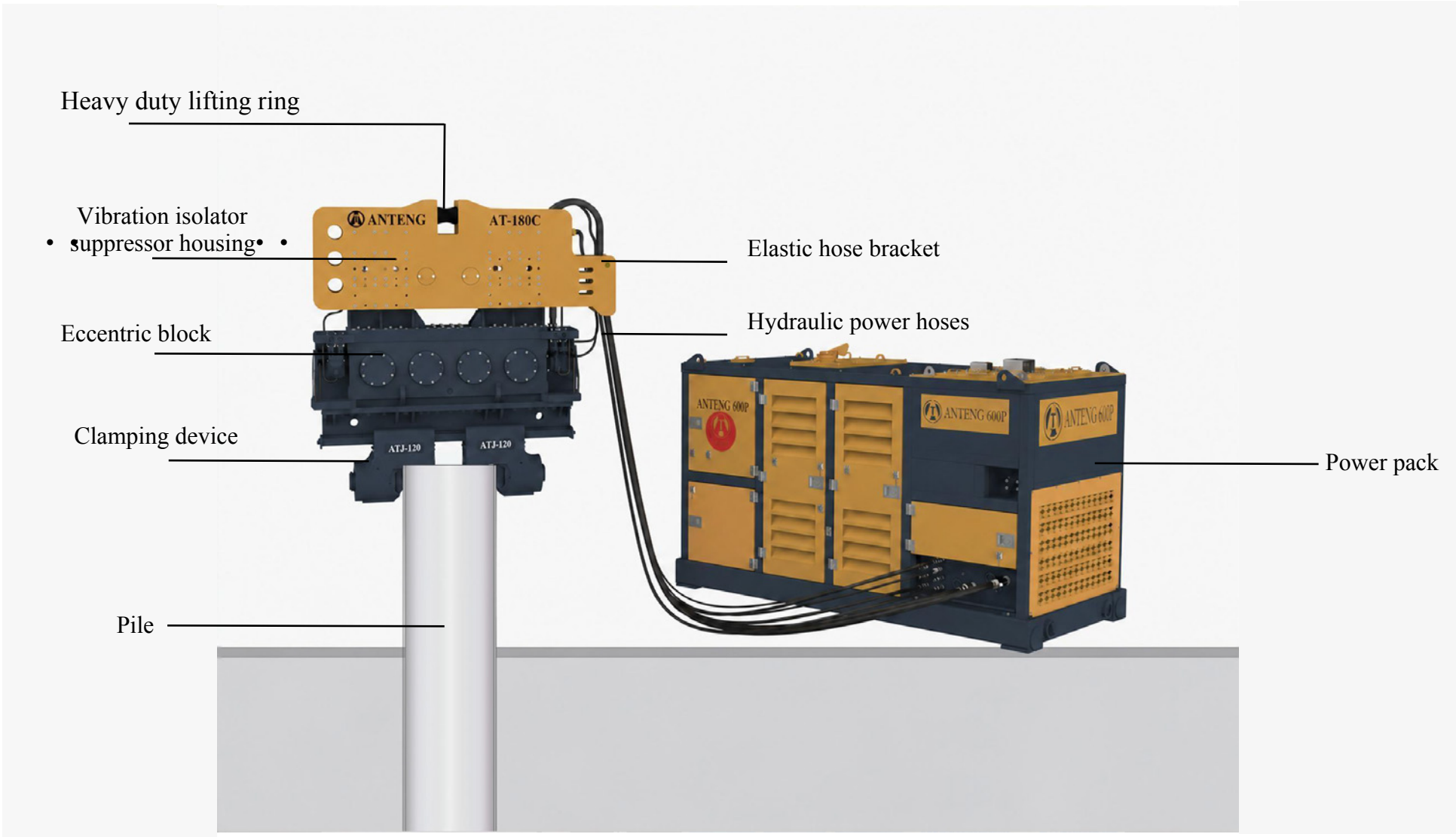
Equipment selection chart



Parameters, equipment selection and operating principle.

Ensuring top performance.

Working principle of Anteng vibrator (typical design)



• Eccentric moment: M^t (m.kg)

$M^t = \Sigma (m \times r)$

(r: distance from the center of gravity to the rotation axis)
(m: weight of the eccentric wheel)

• Centrifugal force: Fc (kN)

Generated by each eccentric wheel:

$fc = m \times r \times \omega^2$ (ω is angular velocity, in rad/s)

Centrifugal force $Fc = 1.118 \times M^t \times n^2 \times 10^{-5}$

(Eccentric moment M^t in m.kg; rotational speed n in r.p.m)

Example: PTC 30H1A vibratory hammer

(Eccentric moment M^t = 30 m.kg; speed n = 1680 r.p.m)

Centrifugal force $F^c = 1.118 \times 30 \times 1680^2 \times 10^{-5} = 946$ kN

• Total vibrating mass: m_v (t)

m_v = weight of vibro box + weight of clamp + weight of pile

• Amplitude: A (mm)

$$\text{Amplitude } A = \frac{2 \times M^t}{m_v}$$

(Amplitude A in mm; eccentric moment M^t in m.kg; vibrating mass m_v in tons)

Example: AT-30NF vibratory hammer

(Eccentric moment M^t = 30 m.kg; vibro box weight = 2.47t, clamp = 0.95 t) + casing (diameter 1.4 m, 26 m long,15mm thick, 13.37 t)

$m_v = 2.47\ t + 0.95\ t + 13.37\ t = 16.79\ t$

$$\text{Amplitude } A = \frac{2 \times 30}{16.79} = 3.6 \text{ mm}$$

Fixed eccentric moment.

Applications

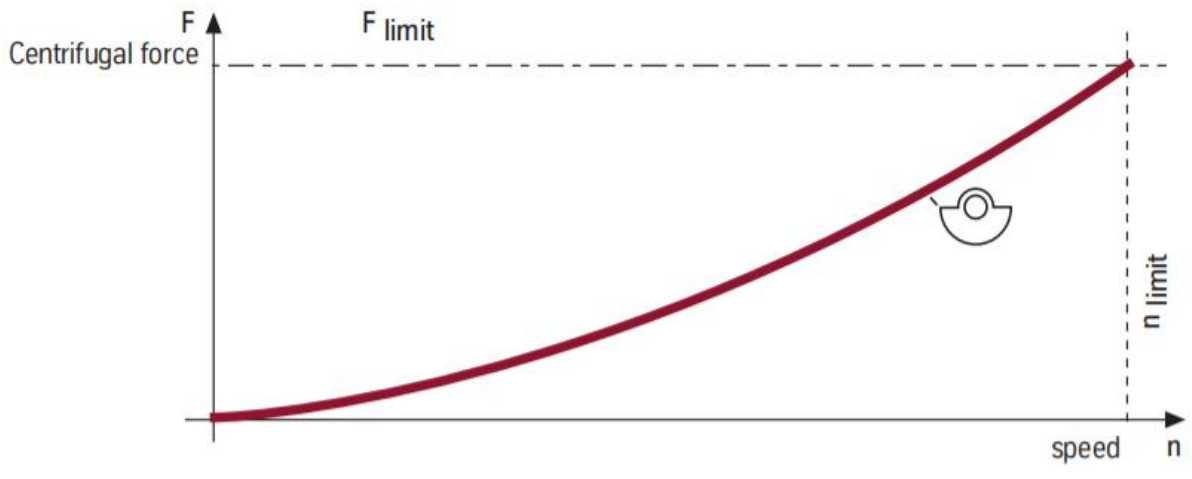
- Light to moderately difficult soil conditions
- Driving and extracting tubular piles
- Suitable for extreme climatic conditions

Advantages

- Extremely robust machine design
- Easy handling and simple adjustment of clamping devices

Type	AT-28NF	AT-32NF	AT-50NF	AT-76NF	AT-110NF	AT-130NF	AT-200NF	AT-250NF
Eccentric Moment (kgm)	28	32	51	76	110	133	200	250
Frequency (rpm)	1800	1800	1800	1818	1380	1450	1400	1400
Centrifugal force (kN)	1000	1140	1810	2760	2300	3076	4300	5400
Max line pull (kN)	400	400	600	800	800	2000	2500	2500
Max Amplitude (mm)	29.5	27	29.1	24.5	25.6	28	34.8	41.7
Max oil flow (L/min)	350	396	650	800	800	994	1400	1400
Size W/O Clamp (mm)	1660*596*1736	2268*690*1557	2909*533*1966	2953*781*2477	3725*783*2313	4015*947*2417	3334*1218*3694	3334*1218*3694
Total Weight (kg)	2800	3610	6500	8000	10500	15000	18500	19500
Power Pack	400P	400P	600P	800P	800P	1200P	1400P	1400P
Single clamp	ATJ-160	ATJ-160	ATJ-240	ATJ-300	ATJ-300	ATJ-360	-	-
Double clamp	ATJ-80DC	ATJ-80DC	ATJ-120DC	ATJ-160DC	ATJ-160DC	ATJ-200DC	ATJ-280DC	ATJ-280DC

Fixed eccentric moment



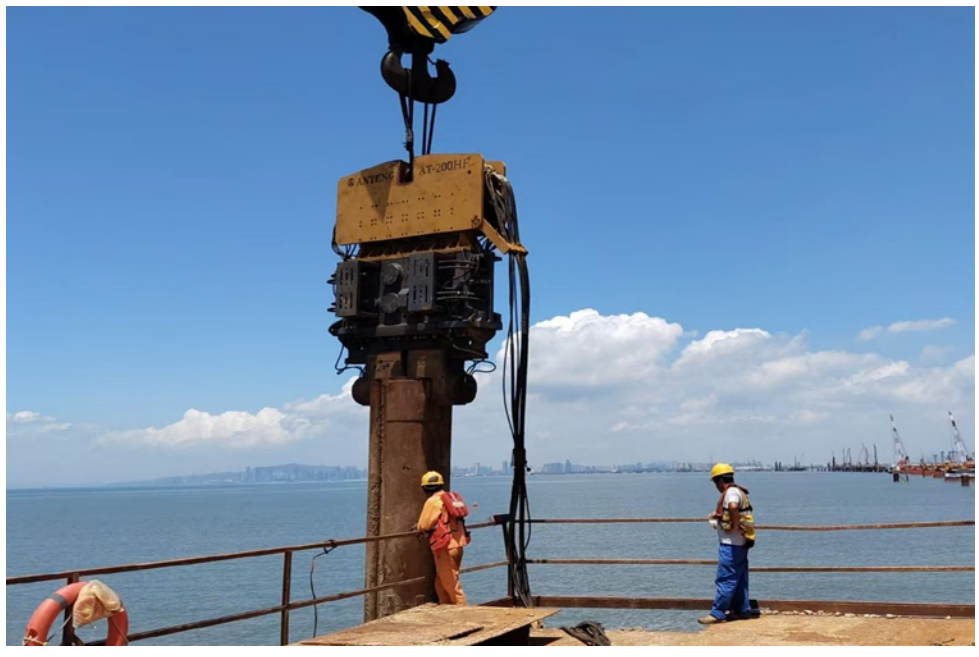
Two-in-one design.

Applications

- Soils with moderate to heavy driving conditions
- Suitable for heavy piles

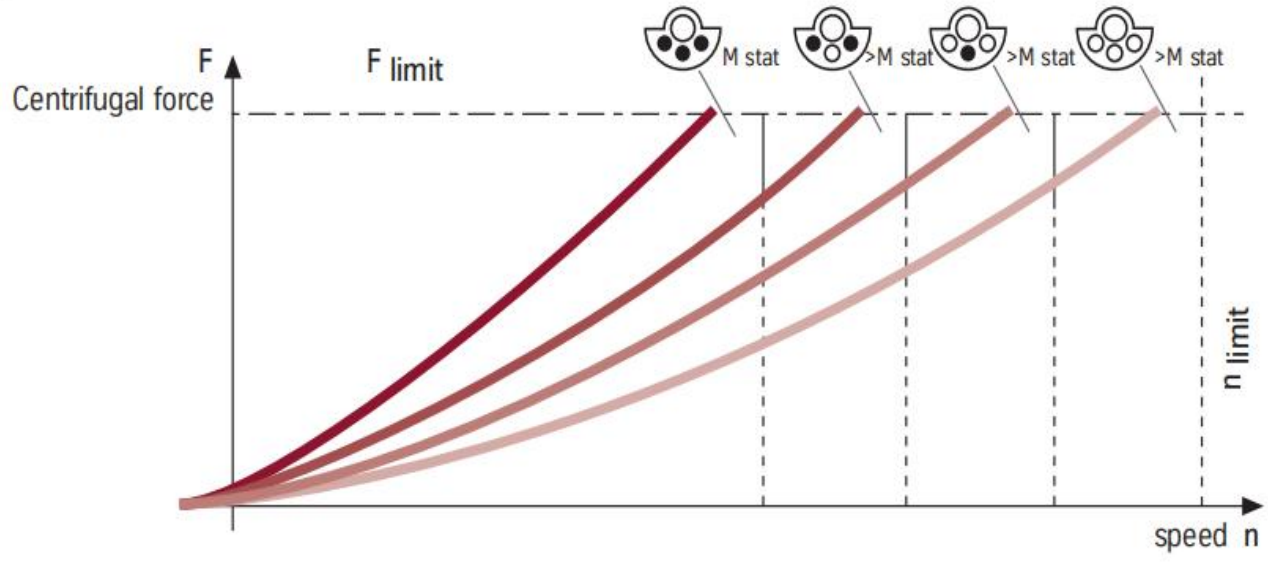
Advantages

- Adding or removing weights
- Quick changeover
- Quick adaptation to different soil conditions



Type	AT-16HF	AT-28HF	AT-36HF	AT-40HF	AT-50HF
Eccentric Moment (kgm)	16	28	36	40	50
Frequency (rpm)	2400	2400	2400	2400	2400
Centrifugal force (kN)	1014	1810	2280	2534	3168
Max line pull (kN)	400	600	800	800	1000
Max Amplitude (mm)	13	16	15	16	17
Max oil flow (L/min)	400	605	864	1056	1450
Max pressure (bar)	350	350	350	350	350
Size Without Clamp (mm)	1700*720*1750	2671*737*2279	2722*832*2404	2800*740*2630	3046*985*2619
Total Weight (kg)	3800	6400	7700	8000	11000
Power Pack	400P	600P	800P	1000P	1400P
Single clamp	ATJ-160	ATJ-240	ATJ-300	ATJ-300	ATJ-360
Double clamp	ATJ-80DC	ATJ-120DC	ATJ-160DC	ATJ-160DC	ATJ-200DC

Stepwise variable moment



Variable and resonance-free.

Applications

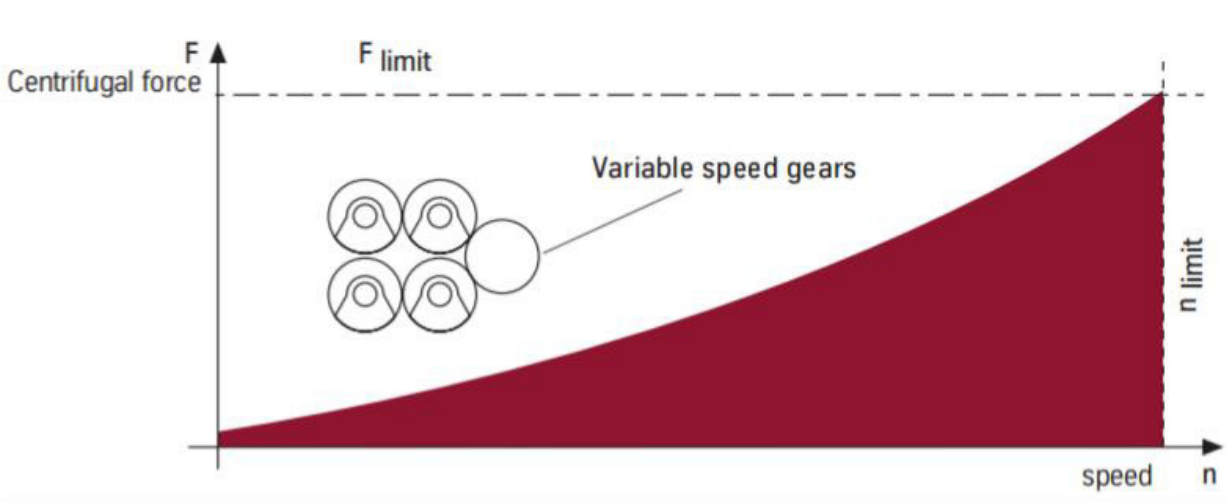
- Inner-city civil engineering works
- Areas sensitive to vibration
- Chiefly sandy soils

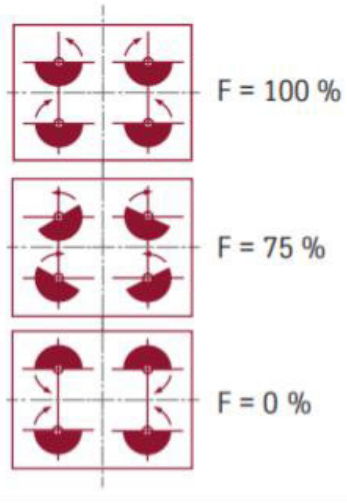
Advantages

- Minimal ground vibrations
- Optimum adaptation to soil conditions
- Gentle on equipment and environmentally friendly

Type	AT-16RF	AT-20RF	AT-24RF	AT-28RF	AT-32RF	AT-40RF	AT-50RF	AT-70RF	AT-90RF
Eccentric Moment (kgm)	0-16	0-20	0-24	0-28	0-32	0-40	0-50	0-70	0-90
Frequency (rpm)	2300	2300	2300	2300	2300	2300	2300	2000	2130
Max Centrifugal force (kN)	931	1164	1400	1630	1862	2327	2905	3080	4477
Max line pull (kN)	280	400	400	400	600	600	800	800	1500
Max Amplitude (mm)	13.9	15.6	13.7	14.3	14.9	18.6	15	20.5	13.3
Max oil flow (L/min)	340	498	592	592	828	1012	1380	1580	2062
Size W/O Clamp (mm)	1700*720*1750	1900*650*2100	2270*750*2300	2270*760*2300	2800*740*2630	2800*740*2630	3046*985*2619	2920*900*2900	3190*1000*3300
Total Weight (kg)	3300	4000	5500	5600	7400	8000	10500	11000	18500
Power Pack	400P	500P	600P	600P	800P	1000P	1400P	1600P	1000P*2
Single clamp	ATJ-120	ATJ-160	ATJ-200	ATJ-200	ATJ-240	ATJ-300	ATJ-360	ATJ-360	Four sided clamps ATJ-1500
Double clamp	ATJ-60DC	ATJ-80DC	ATJ-100DC	ATJ-100DC	ATJ-120DC	ATJ-160DC	ATJ-200DC	ATJ-200DC	ATJ-350DC

Variable eccentric moment





Reliable power and intelligent control.

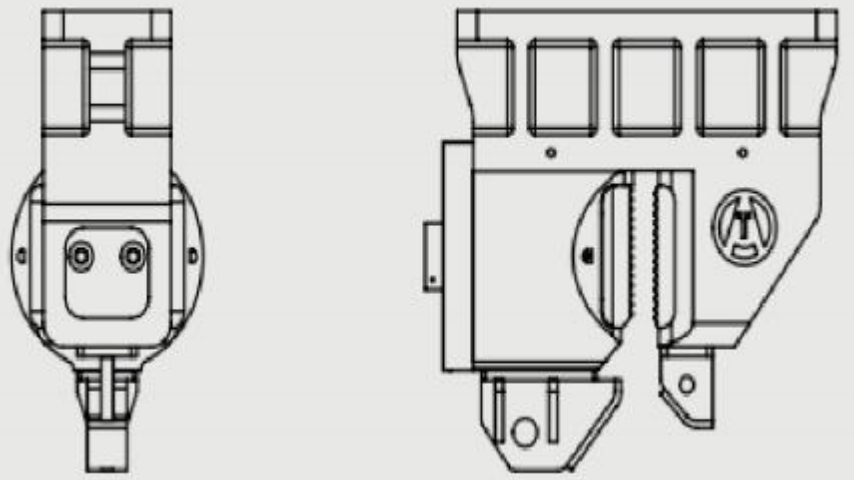
Advantages

- Small, lightweight design with closed oil circuit
- Good reliability thanks to the use of diesel engines, pumps, controls and other components all well-proved in on-site operations
- Comprehensive range of accessories, e.g. teleservicing package,winter package, or by pass fine filter

Power pack	400P	500P	600P	800P	1000P	1200P	1400P	1600P
Engine Type	Cummins	Cummins	Cummins	Cummins/Weichai				
Max Power	265/360	294/400	410/550	670/911	2*410/2*550	2*410/2*550	2*670/2*911	2*670/2*911
Max Frequency(rpm)	1900	1900	1900	1900	1900	1900	1900	1900
Working Pressure (bar)	350	350	350	350	350	350	350	350
Max oil flow(L/min)	468	550	684	936	1051	1250	1450	1600
Weight(kg)	5000	5300	7300	10000	12500	12500	13900	14000
Size L*W*H(mm)	3690*1600*2236	3790*1520*2236	4190*1800*2542	5090*2100*2260	4923*2650*2528	5000*2779*2243	5244*2740*2317	5626*2800*2450
Diesel Tank Capacity	485	485	800	1060	1345	1345	1385	1740
Oil Tank Capacity	900	1100	1500	1930	2640	2640	2685	3770
Vibrator Model	AT-28NF, AT-32NF, AT-16RF	AT-20RF	AT-51NF, AT-200HF, AT-24RF, AT-28RF	AT-230HF, AT-110NF, AT-76NF, AT-32RF	AT-40RF	AT-133NF	AT-200NF, AT-250NF, AT-50RF	AT-70RF, AT-90RF

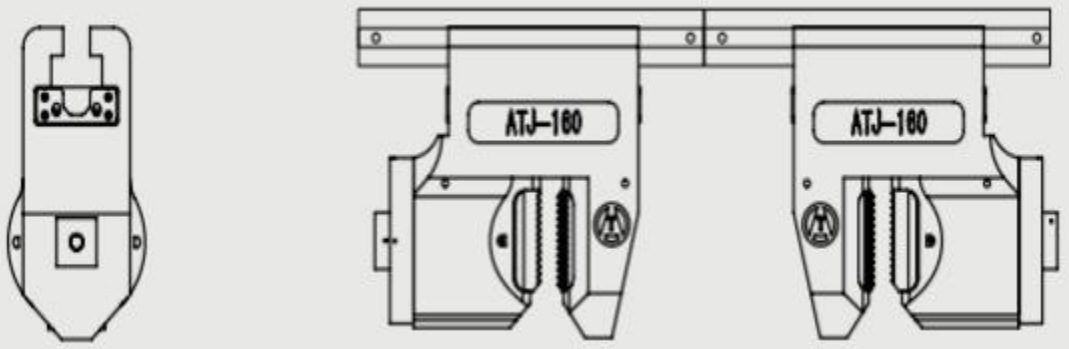
Safe and reliable connections.

Sheet pile clamp



Model	ATJ-120	ATJ-160	ATJ-200	ATJ-240	ATJ-280	ATJ-320	ATJ-360
Clamping force(kn)	1200	1600	2000	2400	2800	3200	3600
Pressure (bar)	320	320	320	320	320	320	320
Weight(kg)	1000	1200	1600	1800	2000	2500	2700
L*W*H(mm)	800*920*380	800*920*410	950*1030*480	1100*1030*480	1105*1030*520	1105*1030*600	1240*1080*600

Double clamp



Model	ATJ-60DC	ATJ-80DC	ATJ-100DC	ATJ-120DC	ATJ-160DC	ATJ-180DC	ATJ-200DC	ATJ-280DC
Clamping force(kn)	600x2	890x2	1000x2	1200x2	1600x2	1800x2	2000x2	2800x2
Pressure (bar)	320	320	320	320	320	320	320	320
Weight of single clamp(kg)	450	550	750	1000	1200	1400	1600	2000
Size of single clamp L*W*H(mm)	550*650*320	641*711*320	700*600*380	700*650*380	1000*905*410	1000*905*480	1020*965*480	1020*850*520
Beam weight/size（kg/mm）	500/1600	700/2000	700/2000	880/2500	930/2750	930/2750	1120/3250	1120/3250
Clamping scope (mm)	400~1200	400~1500	500~1500	520~1800	520~2000	520~2000	600~2500	600~2500

Side Grip Type.

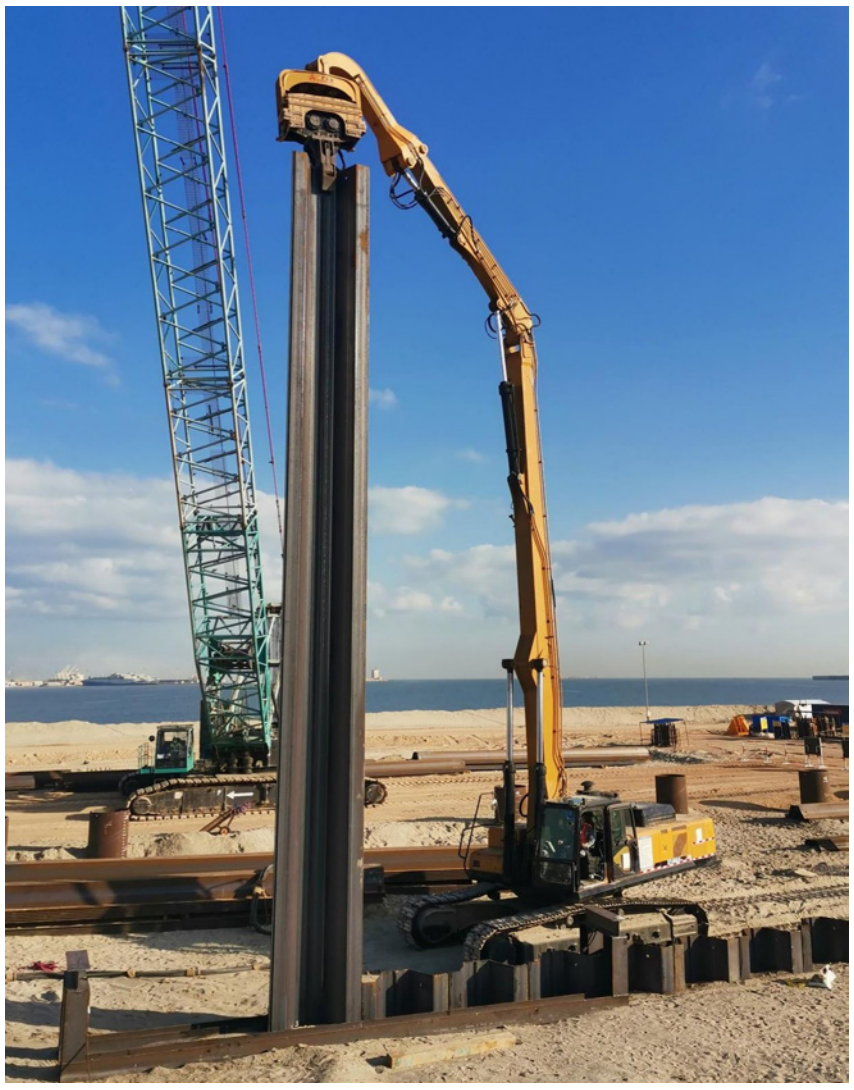
- Excellent performance in confined space, like for working under bridge even for indoor working site.
- No need to modify the excavator.Just remove the bucket and connect the pipeline. No need to in stall the prolong boom.Adjust the counter weight back and install control valve.
- Without modification on excavator,the risk of rollover is greatly reduced.
- Convenient for transportation and greatly reduce the cost of entry and exitat job site.

Data/Model	AT-45C	AT-55C	AT-65C	AT-75C
Eccentric Moment(kgm)	4.5	5.5	6.5	7.5
Centrifugal force(kN)	285	495	585	675
Max Centrifugal force(kN)	445	550	650	750
Frequency (Rpm)	2400~3000	2400~3000	2400~3000	2400~3000
Side clamp force (KN)	468	764	912	1116
Bottom clamp force (KN)	540	540	650	650
Hydraulic system operating pressure (Bar)	350	350	350	350
Rotate/tilt degree (°)	360 / ±30	360 / ±30	360 / ±30	360 / ±30
Size (mm)	1241*1222*2239	1250*1184*2559	1315*1184*2759	1315*1184*2759
Weight (Kg)	2322	3500	4000	4100
Excavator weight (T)	15~25	25~32	32~40	40~50

Top Grip Type.

Anteng V series excavator mounted hydraulic vibratory hammer can be applied for a wide range of working environment because of its small size and simple operation procedure, such as drainage maintenance, river-bank maintenance and marshland working wherever onshore and offshore piling job.

Anteng has developed a series of excavator vibratory hammer from V150 to V1000, totally 12 model, built and designed for excavators weighting from 10 tons to 75 tons, and the clamp can be customized according to the pile size. Meet the different requirements of various types of customers.



Data/Model	Eccentric moment (kgm)	Frequency (rpm)	Max centrifugal force (kN)	Max oil flow (l/min)	Pressure (bar)	L*W*H (mm)	Weight (vibrator +clamp) (kg)	Vice arm (model/size/weight)	Excavator Weight (T)
V-150	3.8	2800	328	90	320	1300*740*2420	1100+300	A150/1995*437* 700mm/330kg	10-15
V-250	4.8	2800	414	176	320		1200+460	A180/2000*620* 1100mm/560kg	20-25
V-300	5.3	2800	457	252	320		2620+550		25-30
V-350	6	2800	517	252	320	1600*740*2740	2650+550	A250/2870*680* 970mm/890kgs	30-35
V-400	6.5	2800	560	308	320		2700+750		35-40
V-450	7.16	2800	617	308	320		2720+750		40-45
V-500	7.6	2800	655	320	308		2740+750		50-55
V-550	8	2800	690	320	308		2760+750		50-60
V-600	9	2800	776	320	350		2780+750		60-65
V-700	10.5	2700	842	320	350	1604*740*3350	3170+750		60-70
V-800	12.8	2600	952	320	395		3220+750		65-75
V-1000	14	2600	1041	320	468		3500+750		75 • • • •

Efficient and Controlled Piling Solutions.

Advantages

• Hydraulic impact hammers offer high energytran sfer efficiency and strong penetration.

• Compared to traditional equipment, they significantly reduce noise, meeting environmental protection requirements.

• The stable impact rhythm improves construction safety and controllability.

• They are highly compatible, flexible in use, and adaptable to various pile driving equipment platforms.

Model		AC-3	AC-5	AC-8	AC-11	AC-12	AC-14	AC-15	AC-16	AC-18	AC-20	AC-21	AC-25	AC-30	AC-35	AC-40
Performance	Impact energy (kNm)	36	60	120	165	180	210	225	240	270	300	315	375	450	525	600
	Working stroke (mm)	1200	1200	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
	Impact frequency (bpm)	35-80	35-80	30-80	30-80	30-80	30-80	30-70	30-70	30-70	30-70	28-70	25-70	25-70	25-60	25-60
	Ram weight (kg)	3000	5000	8000	11000	12000	14000	15000	16000	18000	20000	21000	25000	30000	35000	40000
Size W/O Pile Cap	Length (mm)	4800	5240	6165	6940	6940	7340	6930	7080	7400	8000	8000	7790	8390	8150	8495
	Width (mm)	965	965	1120	1115	1120	1120	1310	1310	1310	1310	1310	1605	1605	1674	1674
	Height (mm)	1060	1060	1240	1200	1240	1240	1430	1430	1430	1430	1430	1735	1735	1860	1860
	Weight (kg)	5800	7600	12700	15500	18000	20400	21500	23000	26000	29500	30500	35700	46000	47000	53000
Pile Cap	Size (L*W*H mm)	895×895×745	895×895×745	920×920×800	976×976×1010	976×976×1010	1260×1200×1050	1260×1200×1050	1260×1200×1050	1260×1260×1050	Custom Design					
	Weight (kg)	1100	1100	1250	1380	1380	2100	2100	2100	2100	Custom Design					
Power Pack	Power Engine model	120P	200P	300P	400P	400P	400P	400P	400P	400P	600P	600P	600P	600P	800P	800P

Groundwork | ANTENG LEADER MOUNTED VIBRATOR

For tight spaces.

Applications

- Driving and extracting sheet pilestubular piles and H-sections
- Foundation methods such as compacted gravel or sand columns
- Driving and extracting single sheet piles with small dimensions

Advantages

- Compact design
- Driving and extracting on cramped sites
- Resonance-free starting and stopping
- Minimum vibrations and emissions

Technical Parameter	AMG 16	AMG 20	AMG 25
Static moment• kgm• •	0-16	0-20	0-25
Dynamic mass• kg• •	2900	3600	3800
Nominal revolutions• rpm• •	2100	2150	2000
Maximum revolutions• rpm• •	2300	2300	2300
Centrifugal force at nominal frequency• kN• •	776	1017	1100
Maximum centrifugal force• kN• •	931	1164	1455
Static extraction force max.• kN• •	220	260	300
Maximum oil pressure• MPa• •	35	35	35
Recommended installed power of carrier approx• kW• •	205-300	300-470	430-470
Total weight with clamp• kg• •	4400	5100	5300
Transport weight• kg• •	4800	5500	5700
Standard clamp assembly	ATJ-160B	ATJ-160B	ATJ-160B

Groundwork | ANTENG HYDRAULIC VIBRO FLOT

For soil improvement.

The Anteng Hydraulic Vibroflot uses a hydraulic motor to drive an eccentric block inside the vibration body through a coupling, generating centrifugal force and producing horizontal vibrations throughout the entire unit.

This mechanism, combined with high-pressure water jetting, compacts and densifies soil particles. Sand or gravel can then be added to form compacted piles,improving the soil characteristics and making it suitable for construction projects.

The vibroflot can be applied in the construction of fill vibratory piles and densification vibratory piles. It is suitable for sandy gravel, sand, silty soil, clay,artificial fill, and liquefaction treatment.

The treated layers can withstand certain dynamic loads, improving the bearing capacity and relative density of the foundation, as well as its liquefaction resistance.

Model	Eccentric Moment (kgm)	Frequency (rpm)	Centrifugal Force • kN•	Power• kW•	Maximum Pressure • bar•
ATHV20	2.0	2600	150	135	350
ATHV40	4.5	2400	284	175	350
ATHV110	11.5	1600	323	235	350

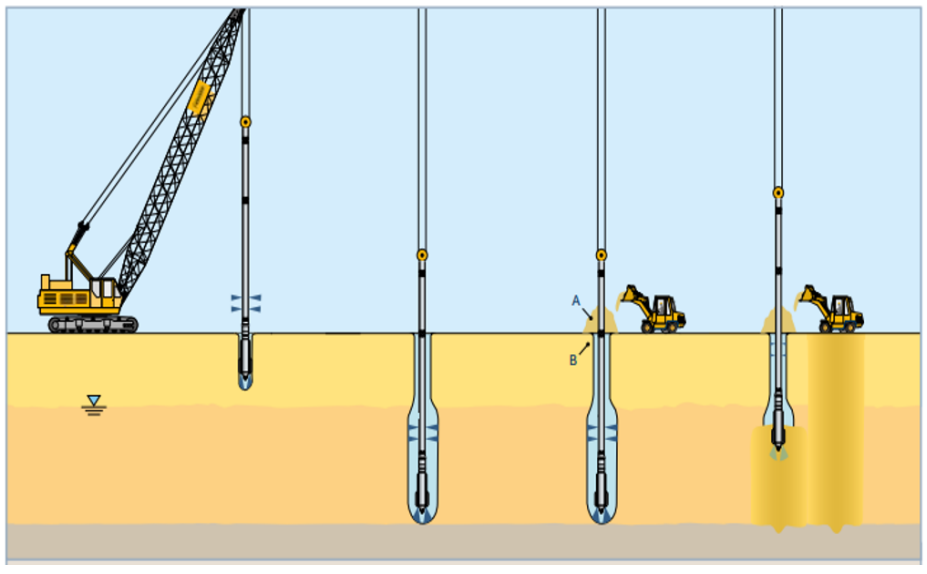
FEATURES:

The Anteng Hydraulic Vibroflot is powered by an Anteng power unit, which is more reliable than municipal power supply.

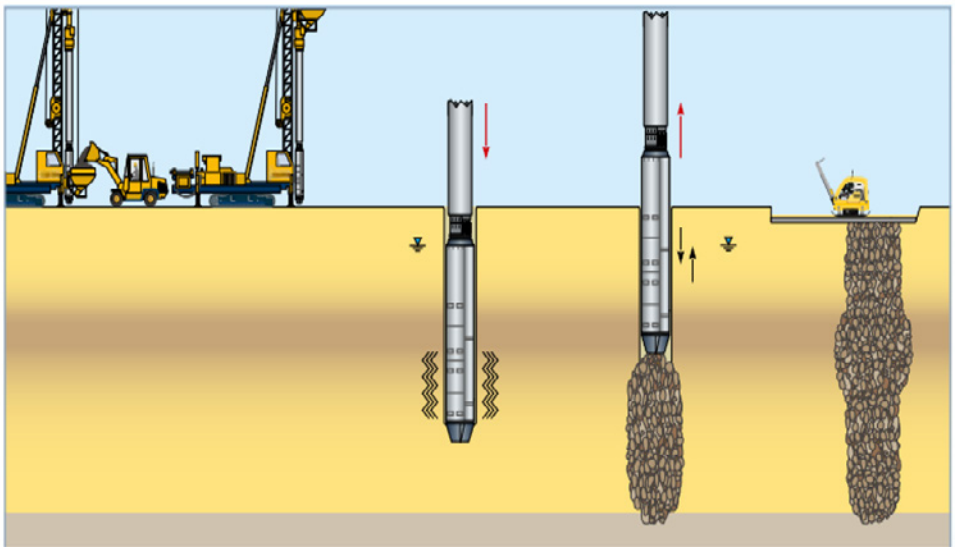
The equipment can be used in series to improve production efficiency. As an optional accessory, an extension pipe can increase the effective working depth of the vibroflot beyond our standard depth.

The treated ground can bear greater loads, reduce settlement, and improve liquefaction resistance. This process has been technically validated and is cost-effective.

The process



The process



Rounding off the range.

Model	TD20000	TD25000	TD35000	TD40000	TD50000	TD65000	TD100000
Max speed• rpm• •	35	28	47	38	33	25	15
Max Torque range• N.m• •	18342	23208	33342	41007	47906	61319	103498
Oil pressure range• bar• •	80-240	160-240	160-350	160-350	160-350	160-350	160-350
Oil flow range• L/min• •	80-170	80-170	100-280	100-280	100-280	100-280	100-280
Hose/Quick coupling • bsp• •	1"	1"	1"	1"	1"	1"	1 1/2"
Output shaft Std• mm• •	90 (Square)	90 (Square)	110 (Square)	110 (Square)	110 (Square)	110 (Square)	150 (Hexagon)
Unit weight• kg• •	297	297	620	620	620	620	1050
Unit height• mm• •	1055	1055	1530	1530	1530	1530	1730
Unit diameter• mm• •	370	370	484	484	484	484	545
Auger series	S6	S6	PA	PA	PA	PA	PA
Applicable Excavator(t)	13~20	15~22	21~45	21~45	21~45	21~45	21~50