In [3]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

In [23]:
```
ep=pd.read_csv("C:\\Users\\LENOVO\\Desktop\\SEM3\\Time series\\Electric_Produc
               header =0,index_col=0, parse_dates=True, squeeze=True)
ep
```

```
C:\Users\LENOVO\AppData\Local\Temp\ipykernel_15268\2641565824.py:1: FutureWa
rning: The squeeze argument has been deprecated and will be removed in a fut
ure version. Append .squeeze("columns") to the call to squeeze.


  ep=pd.read_csv("C:\\Users\\LENOVO\\Desktop\\SEM3\\Time series\\Electric_Pr
oduction.csv",
```

Out[23]:
```
DATE
1985-01-01     72.5052
1985-02-01     70.6720
1985-03-01     62.4502
1985-04-01     57.4714
1985-05-01     55.3151
                ...
2017-09-01     98.6154
2017-10-01     93.6137
2017-11-01     97.3359
2017-12-01    114.7212
2018-01-01    129.4048
Name: IPG2211A2N, Length: 397, dtype: float64
```

In [25]:
```
ep.head()
```

Out[25]:
```
DATE
1985-01-01    72.5052
1985-02-01    70.6720
1985-03-01    62.4502
1985-04-01    57.4714
1985-05-01    55.3151
Name: IPG2211A2N, dtype: float64
```

In [10]:
```
ep.isna().sum()
```

Out[10]:
```
0
```

In [12]:
```
ep.size
```

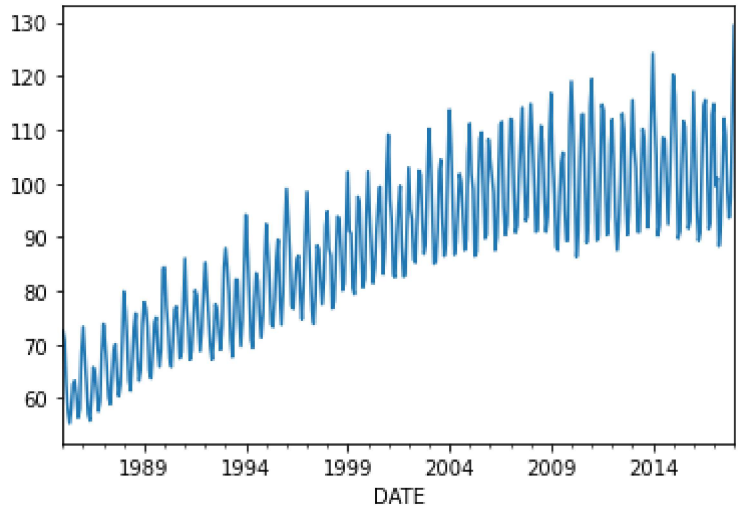
Out[12]:
```
397
```

In [13]:
```
ep.describe()
```

Out[13]:
```
count    397.000000
mean      88.847218
std       15.387834
min       55.315100
25%       77.105200
50%       89.779500
75%      100.524400
max      129.404800
Name: IPG2211A2N, dtype: float64
```

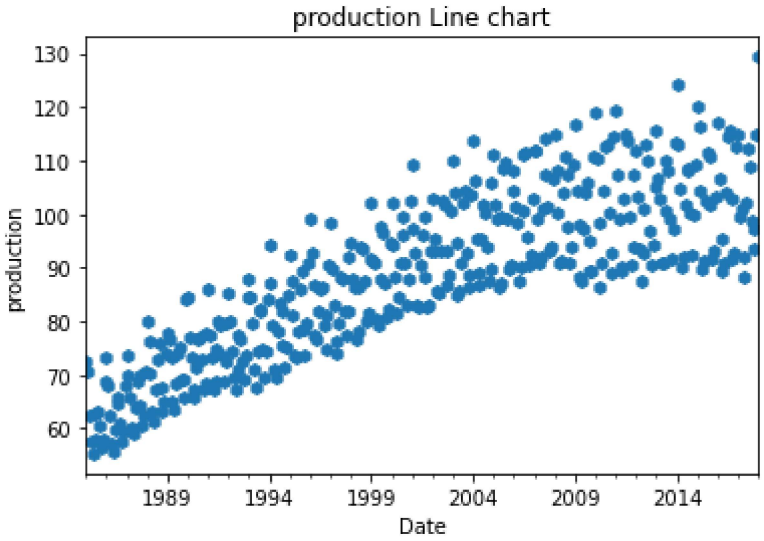
Line chart

In [15]:
```
ep.plot()
plt.show()
```



In [31]:
```
ep.plot(style="h")
plt.title("production Line chart")
plt.xlabel("Date")
plt.ylabel("production")
plt.legend
```

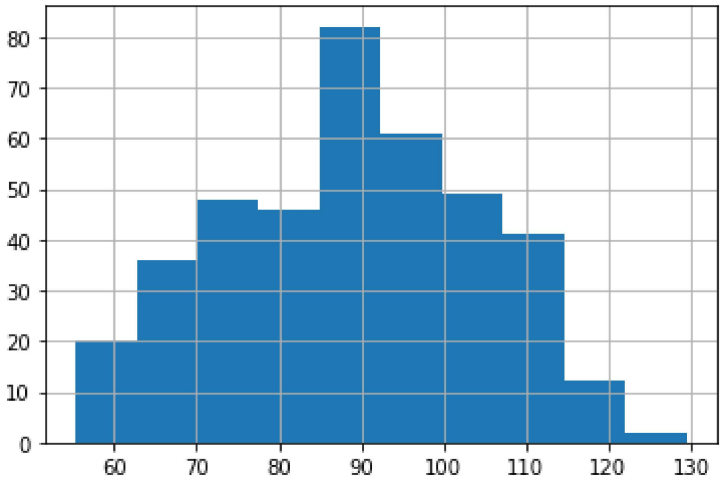
Out[31]: <function matplotlib.pyplot.legend(*args, **kwargs)>



Histogram

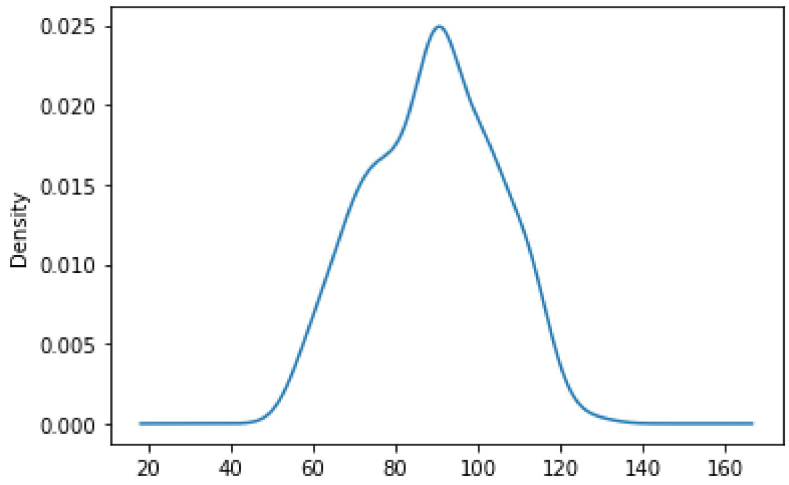
In [18]:
```
ep.hist()
```

Out[18]: <AxesSubplot:>



In [19]:
```
ep.plot(kind="kde")
```

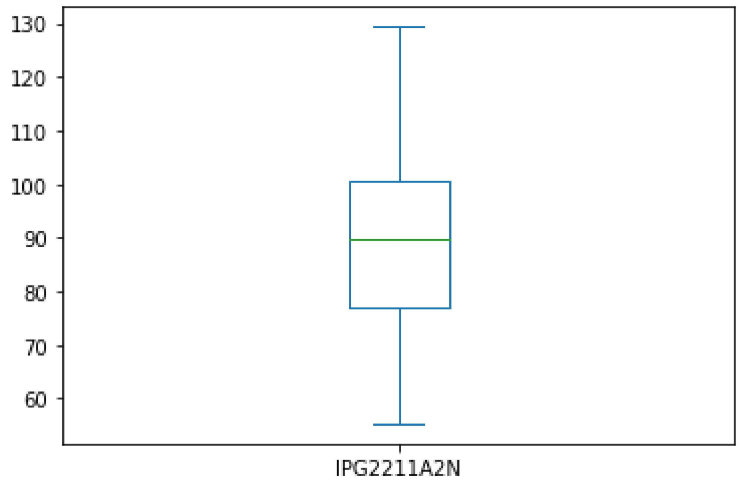
Out[19]: <AxesSubplot:ylabel='Density'>



Boxplots

In [20]:
```
ep.plot(kind="box")
```

Out[20]: <AxesSubplot:>



In [40]:
```
groups = ep.groupby(pd.Grouper(freq="Q"))
```

In [41]:
```
groups.count()
```

Out[41]:
```
DATE
1985-03-31    3
1985-06-30    3
1985-09-30    3
1985-12-31    3
1986-03-31    3
             ..
2017-03-31    3
2017-06-30    3
2017-09-30    3
2017-12-31    3
2018-03-31    1
Freq: Q-DEC, Name: IPG2211A2N, Length: 133, dtype: int64
```

In [47]:
```
ep.drop('2018-01-01',inplace=True)
```

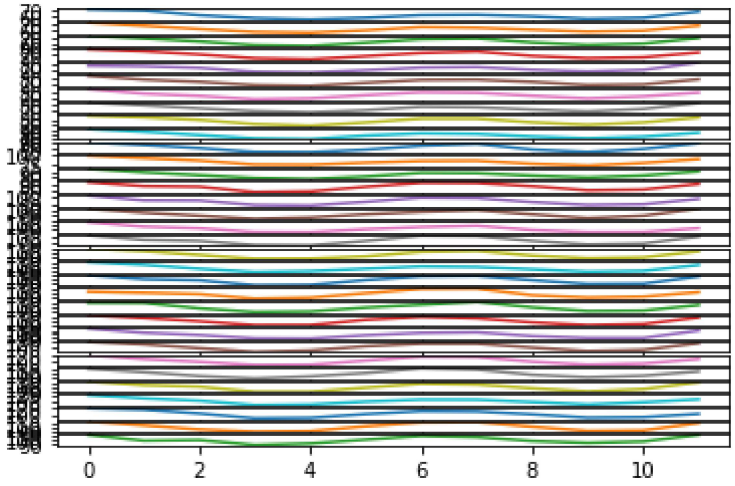
In [48]:
```
ep
```

Out[48]:
```
DATE
1985-01-01     72.5052
1985-02-01     70.6720
1985-03-01     62.4502
1985-04-01     57.4714
1985-05-01     55.3151
                ...
2017-08-01    108.9312
2017-09-01     98.6154
2017-10-01     93.6137
2017-11-01     97.3359
2017-12-01    114.7212
Name: IPG2211A2N, Length: 396, dtype: float64
```

In [50]:
```
groups = ep.groupby(pd.Grouper(freq="Q"))
groups.count()
```

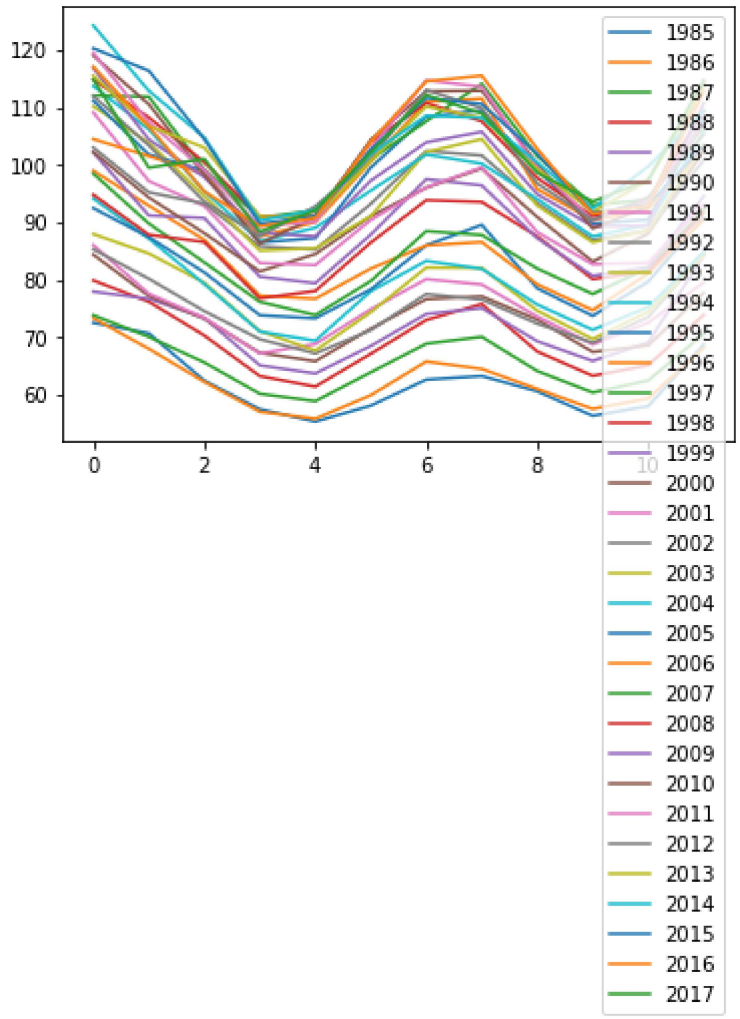
Out[50]:
```
DATE
1985-03-31    3
1985-06-30    3
1985-09-30    3
1985-12-31    3
1986-03-31    3
             ..
2016-12-31    3
2017-03-31    3
2017-06-30    3
2017-09-30    3
2017-12-31    3
Freq: Q-DEC, Name: IPG2211A2N, Length: 132, dtype: int64
```

In [52]:
```
groups=ep.groupby(pd.Grouper(freq="A"))
years=pd.DataFrame()

for name,group in groups:
    years[name]=group.values

years.plot(subplots=True, legend = False)
plt.show()
```



In [57]:
```
years.plot()
```

Out[57]: <AxesSubplot:>



In [56]:
```
years=pd.DataFrame()
for name, group in groups:
    years[name.year]=group.values

years.boxplot()
```

Out[56]: <AxesSubplot:>