# 管道及仪表流程图中
# 设备、机器图例

HG 20519.31-92

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1. 本规定适用于化工工艺设计施工图中管道及仪表流程图的绘制。

2. 各图例在绘制时其尺寸和比例可在一定范围内调整。一般在同一工程项目中，同类设备的外形尺寸和比例应有一个定值或一规定范围。

绘制时要使各图例形象、明了、表达确切；图面要清楚美观，各图例的相对大小要适当。设备(机器)主体与其附属设备或内外附件要注意尺寸和比例的协调。

3. 各图例在绘制时允许有方位变化。各图例也允许几个图例进行组合或叠加。

4. 本规定未列入的设备(机器)的图例可采用下述方法予以解决。

(1)根据设备、机器的具体类别、形状和内外特征，参考本规定编制新的图例。

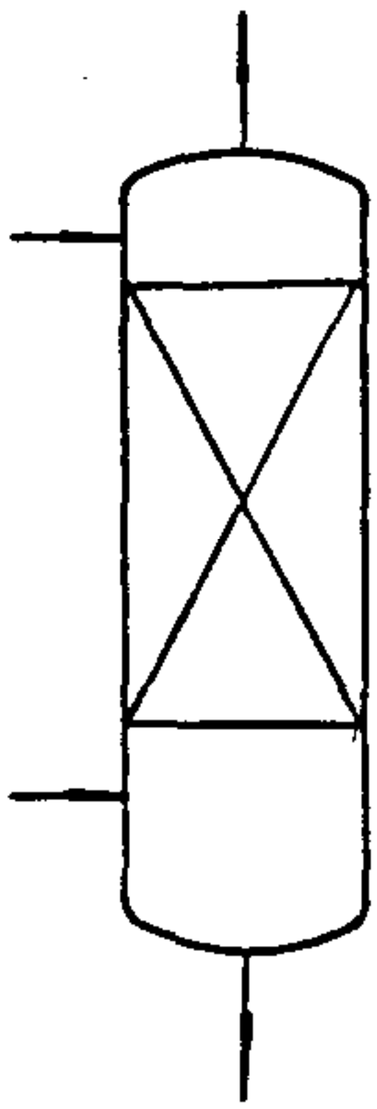
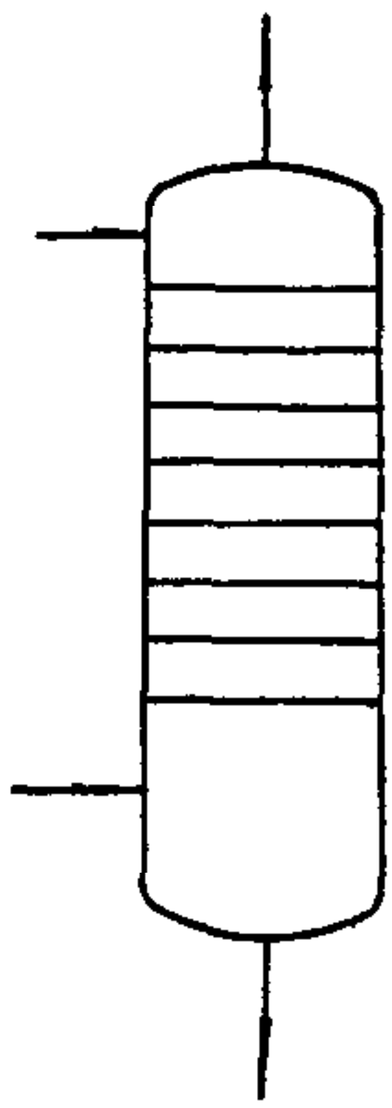
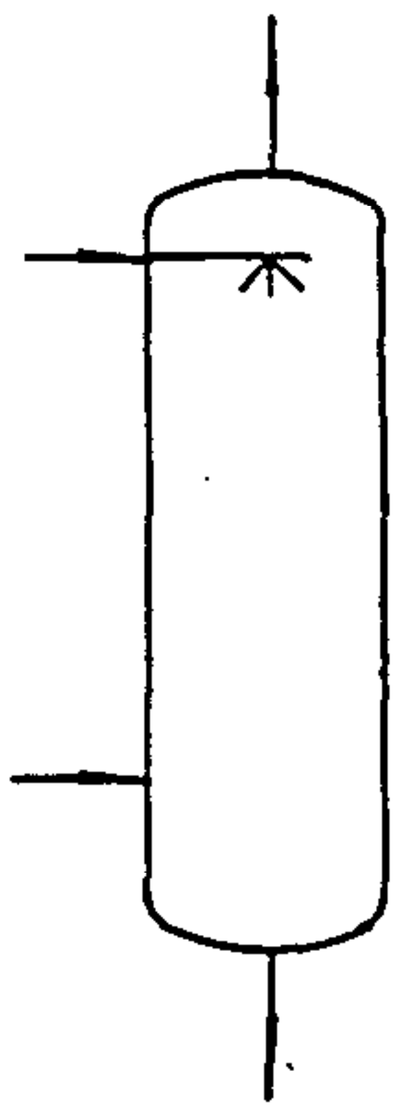
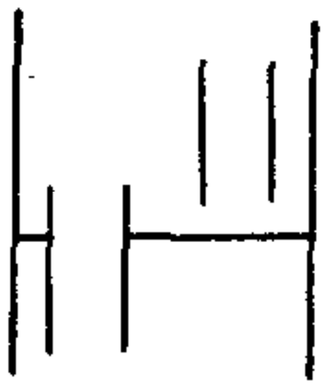
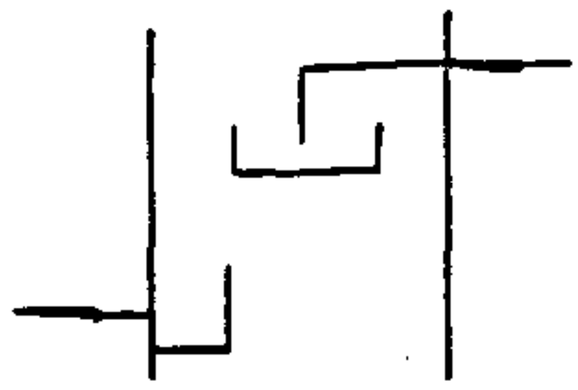
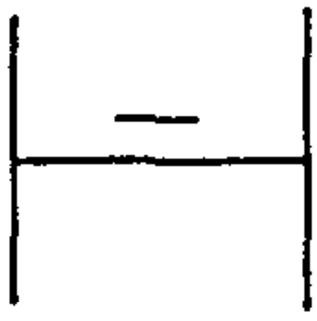
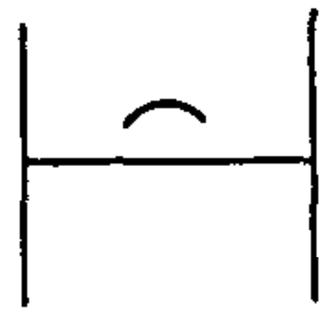
(2)参照或选用其它有关专业的图例规定。

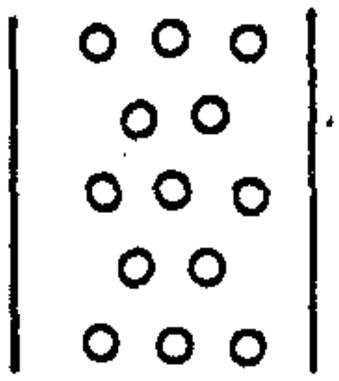
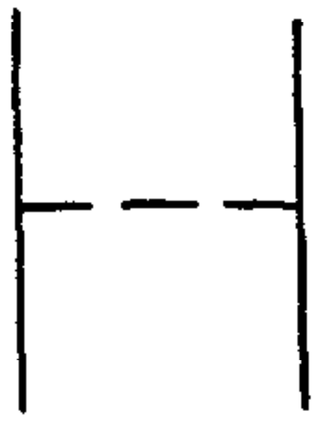
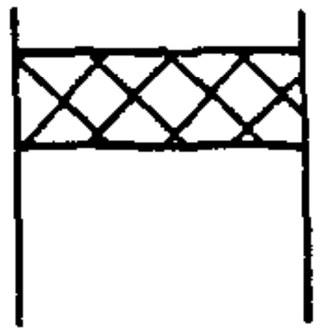
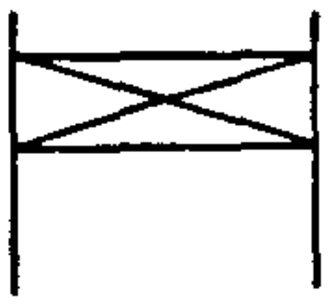
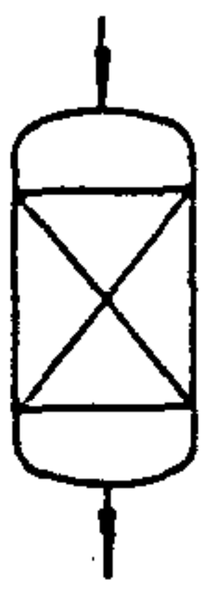
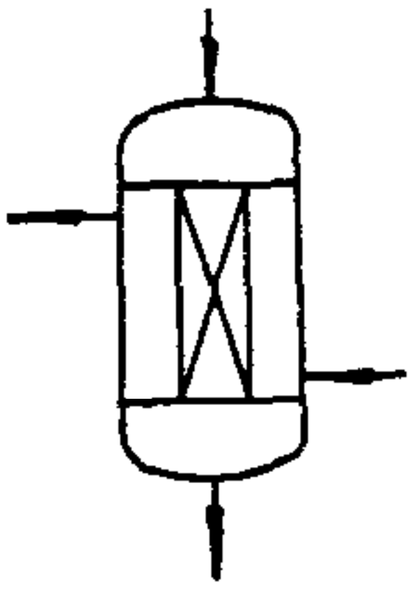
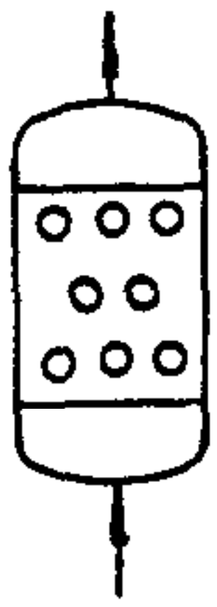
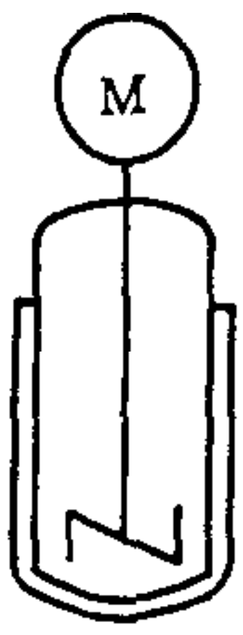
(3)必要时以一长方形框(或方框)代表，框内注明设备位号及名称。

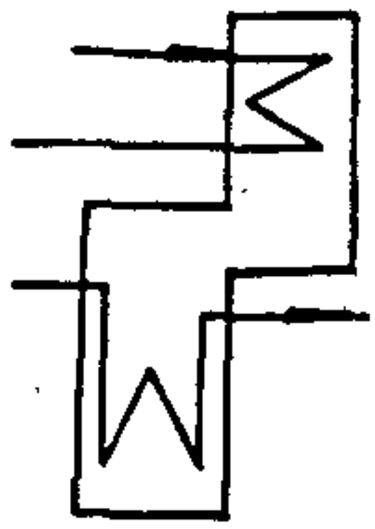
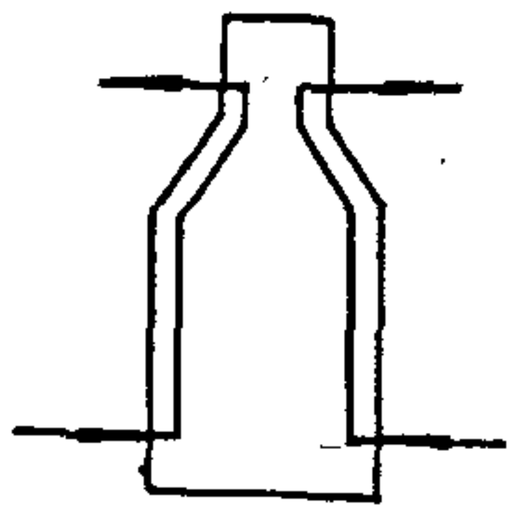
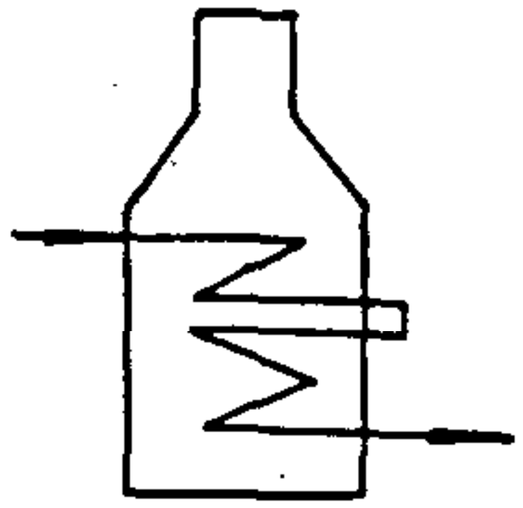
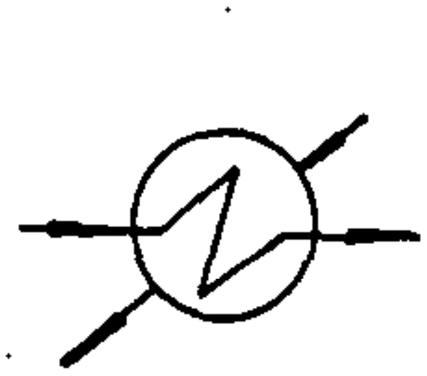
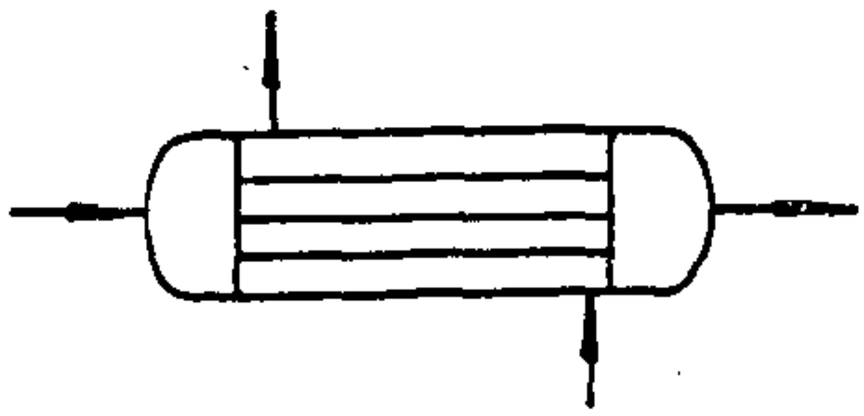
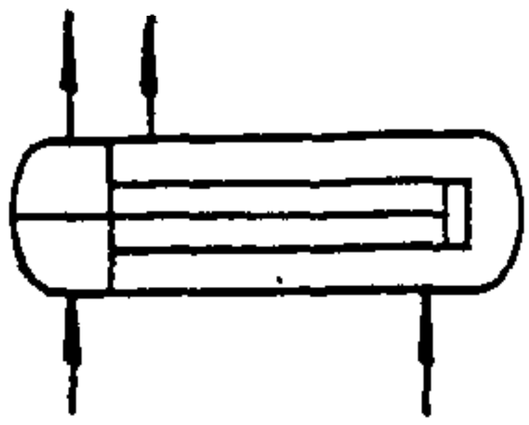
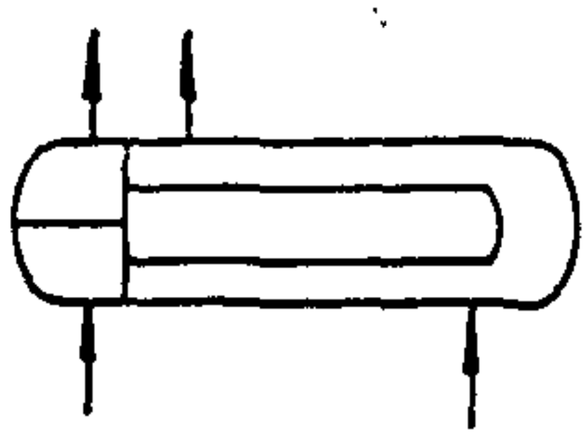
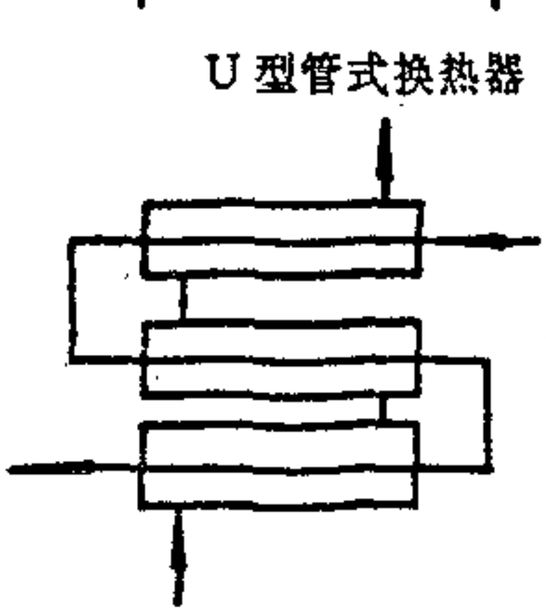
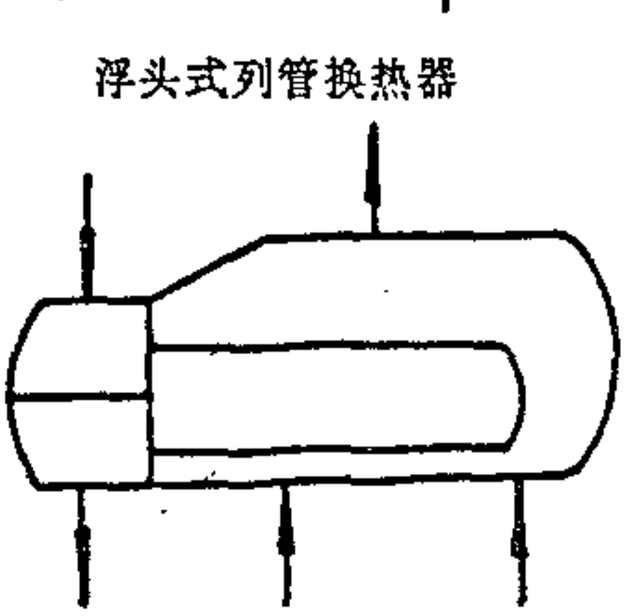
(4)设备、机器本身必须表示的附件。如卸料孔、集液包、人孔、膨胀节等可用一些简单明了的图形符号附加在相应的图例上。

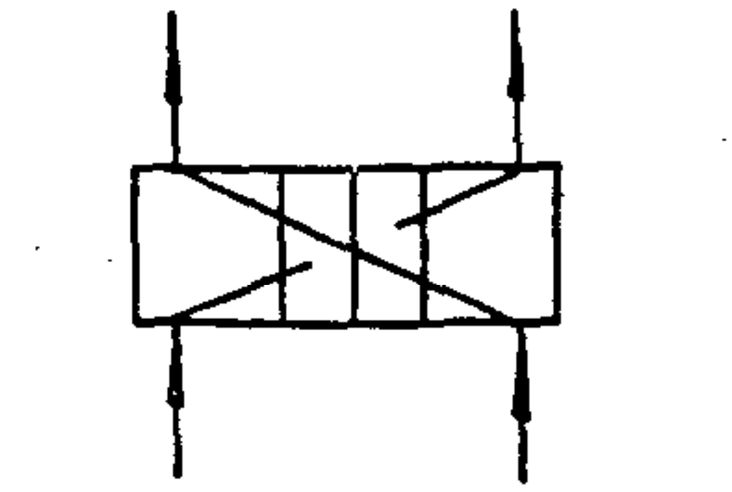
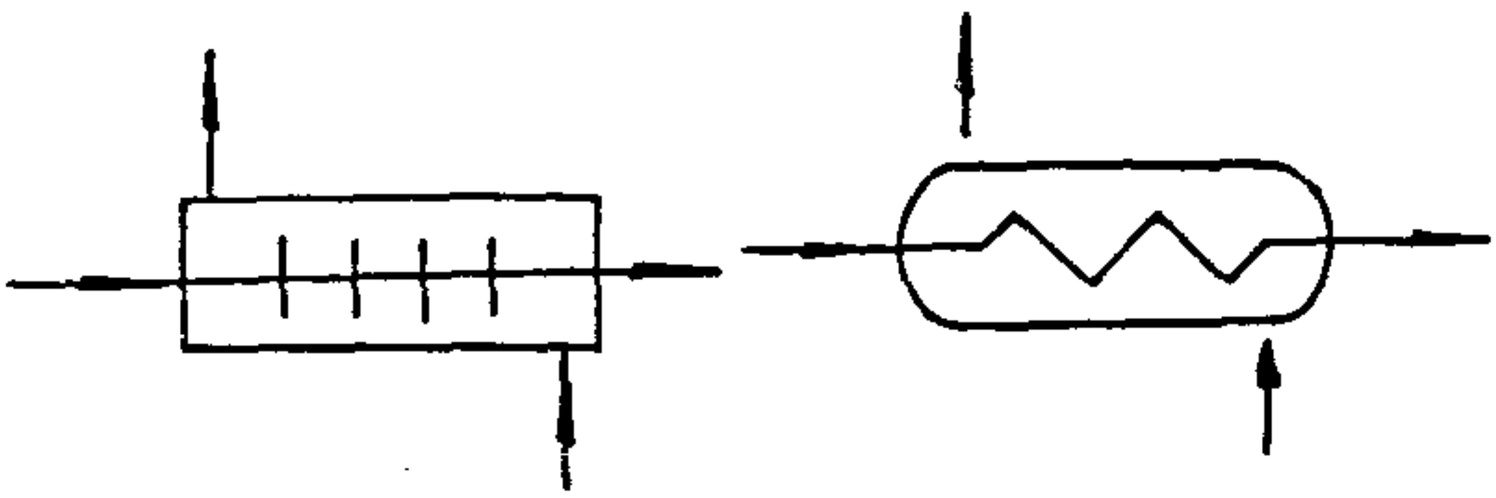
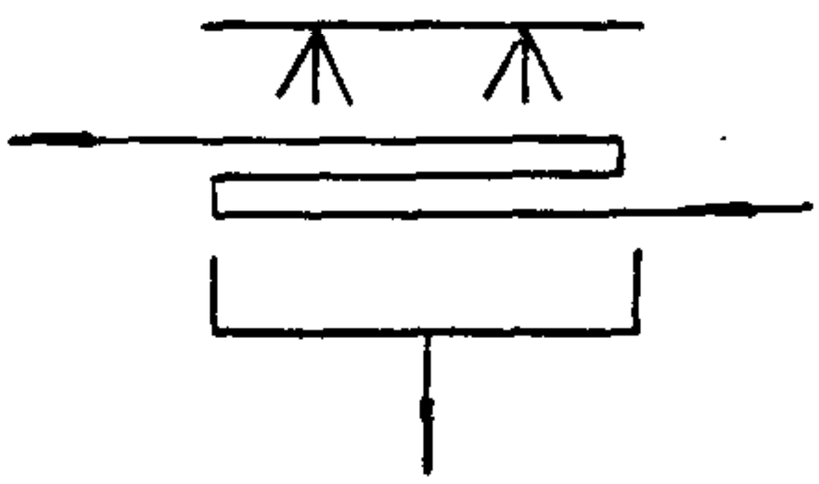
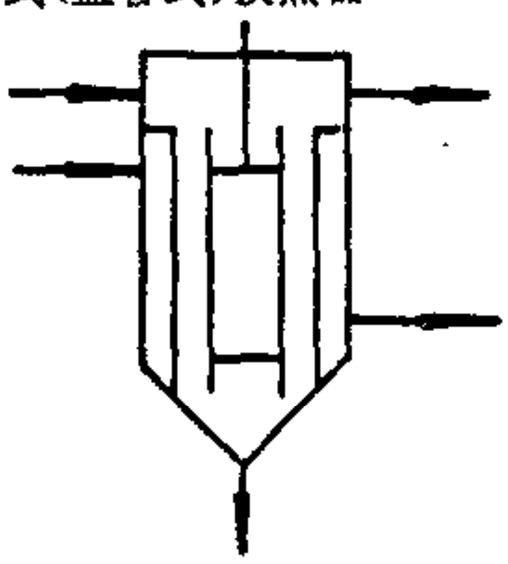
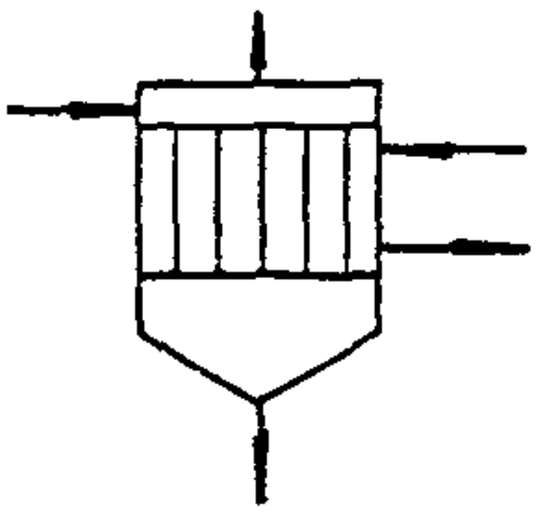
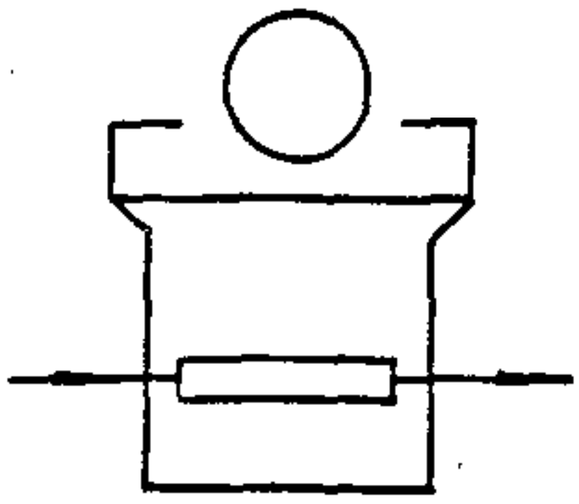
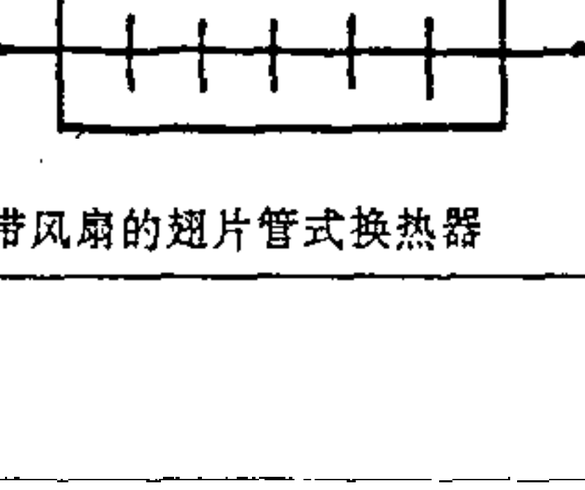
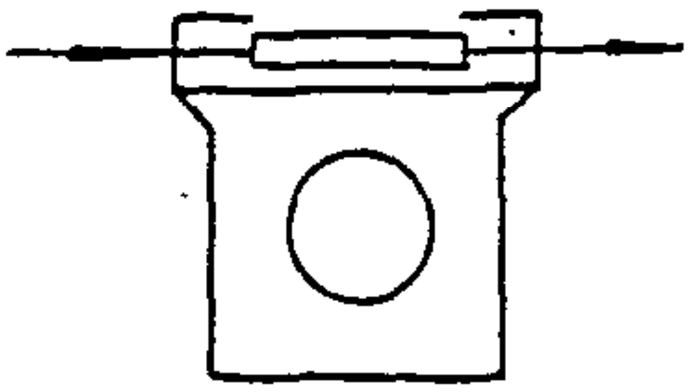
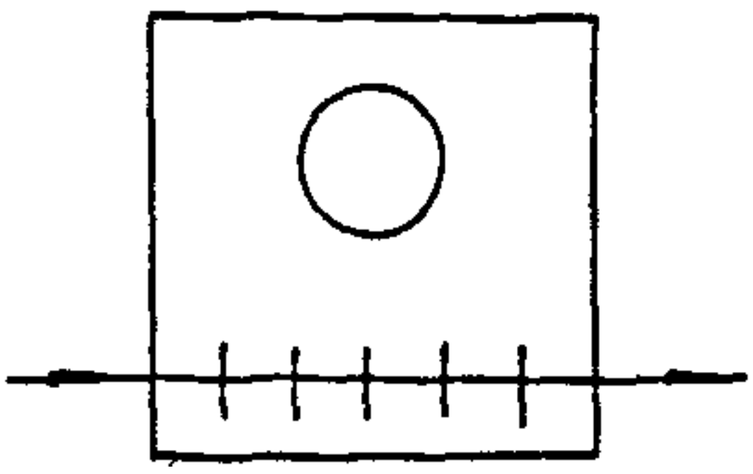
5. 图形线条宽度为0.25mm 或0.3mm。

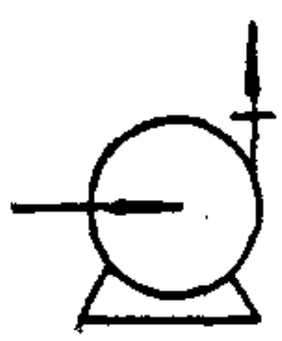
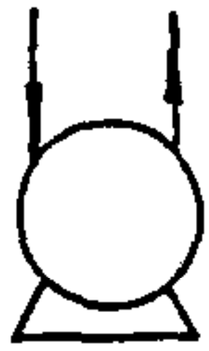
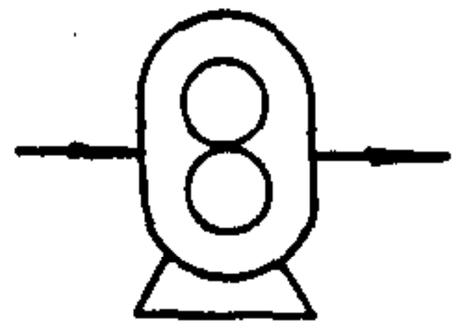
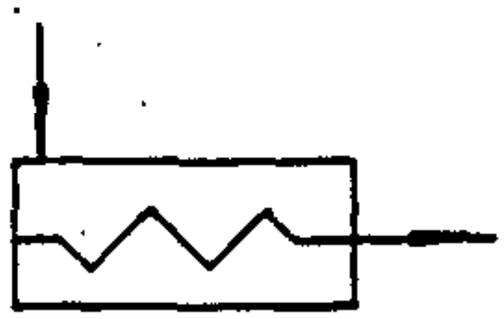
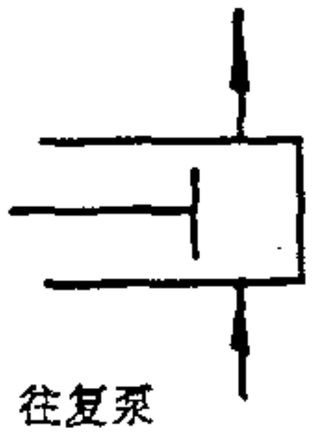
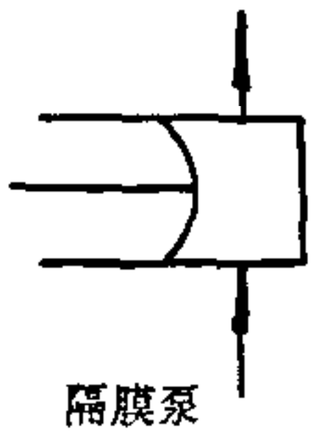
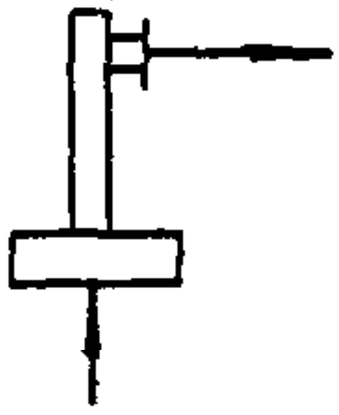
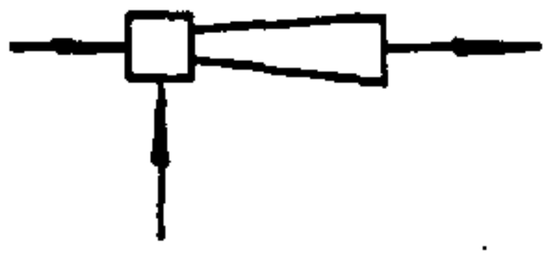
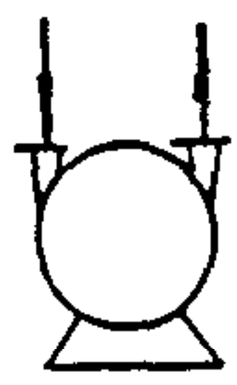
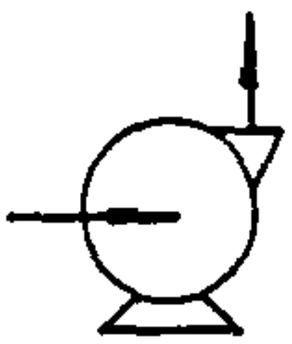
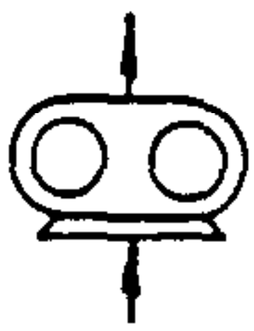
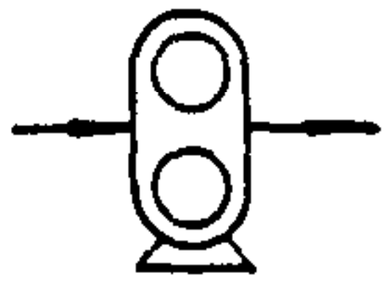
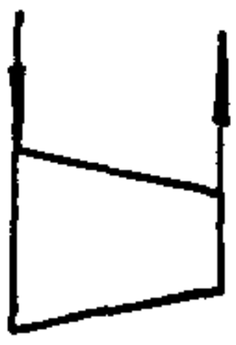
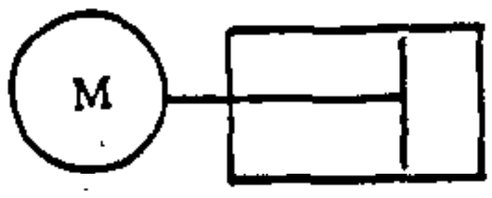
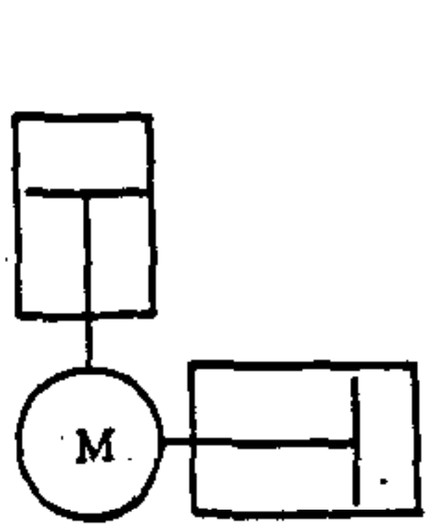
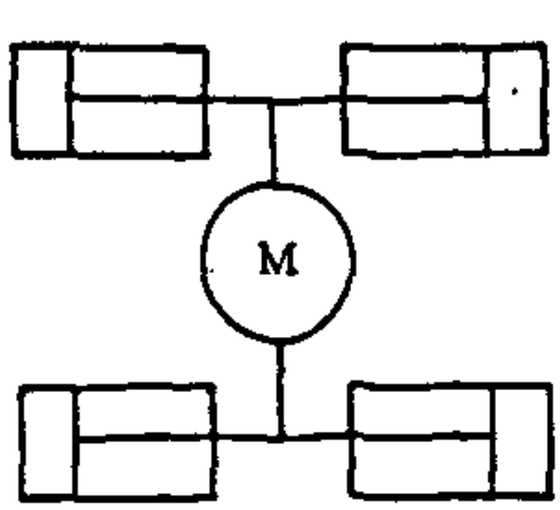
**见例图。**

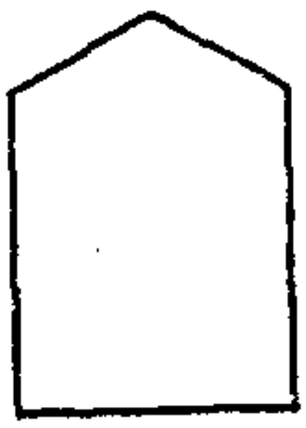
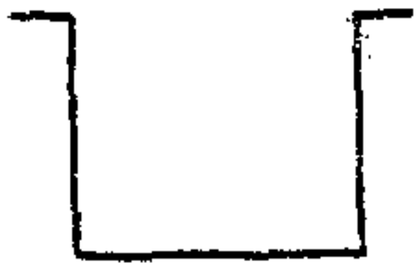
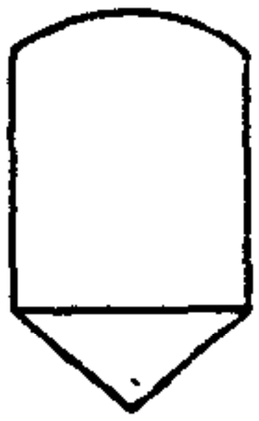
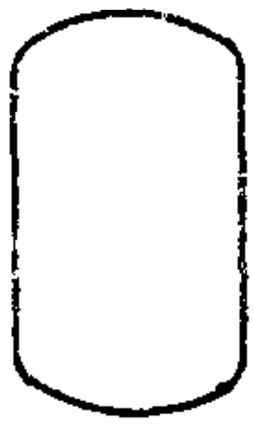
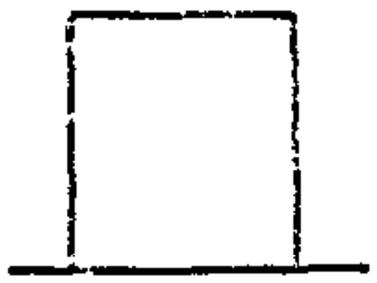
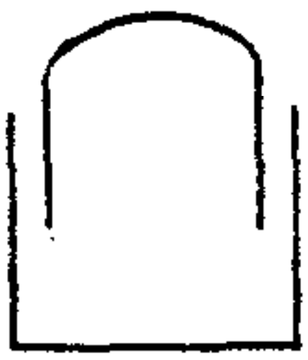
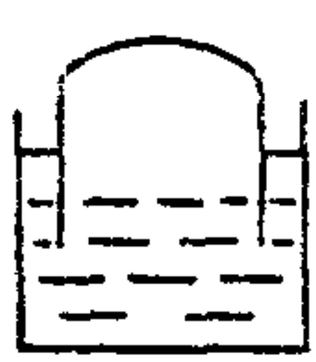
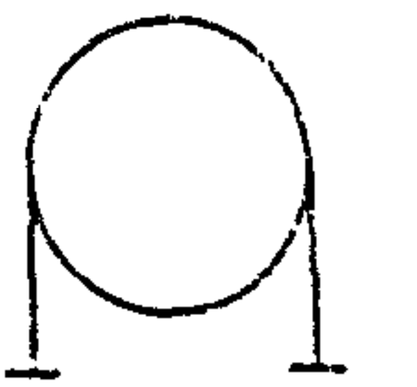
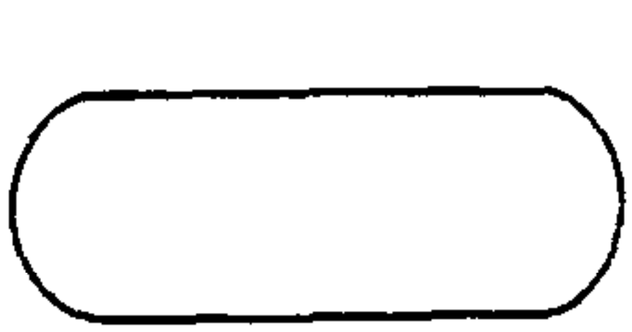
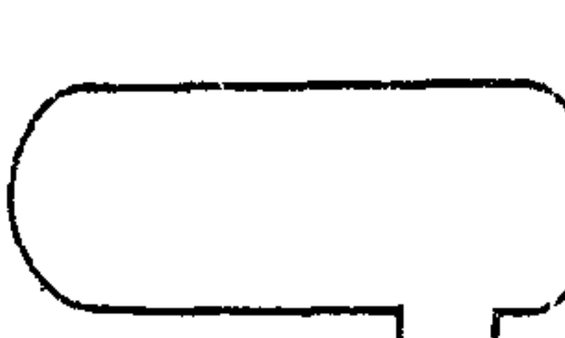
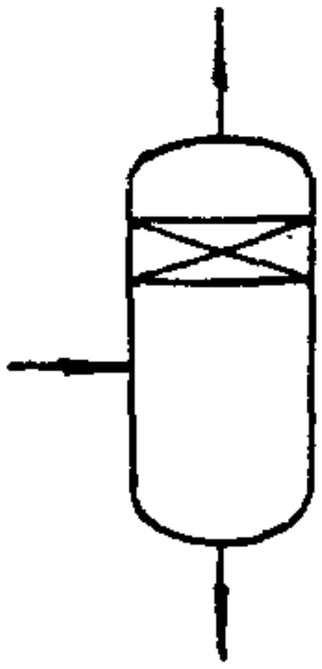
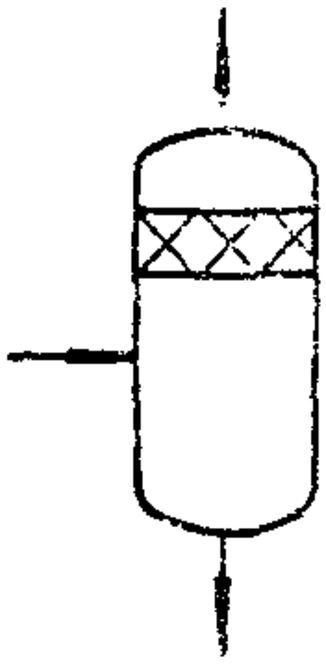
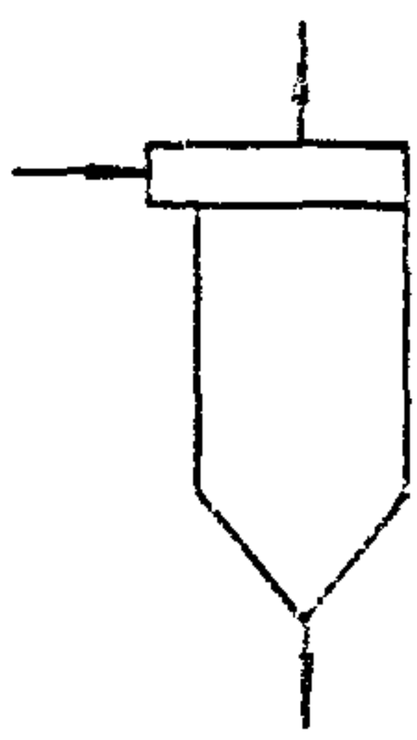
| 类别 | 代号 | 图例 |
| --- | --- | --- |
| 塔 | T |  填料塔 |
| | |  板式塔 |
| | |  喷洒塔 |
| 塔内件 | |  降液管 |
| | |  受液盘 |
| | |  浮阀塔塔板 |
| | |  泡罩塔塔板 |
| | |  格栅板 |
| | |  升气管 |

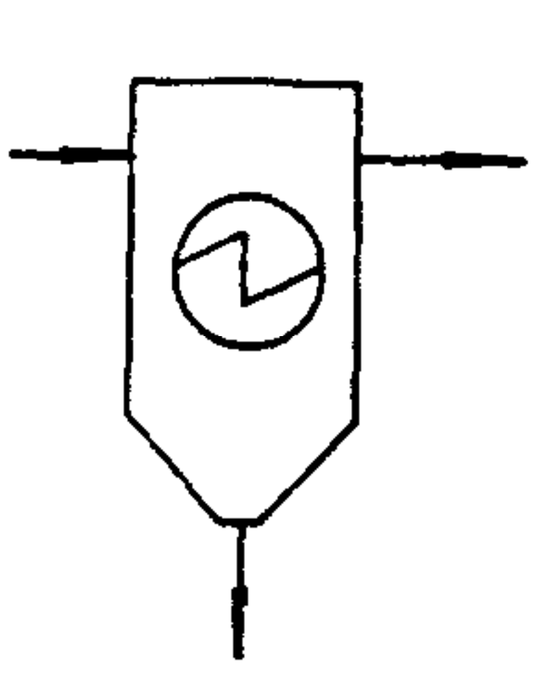
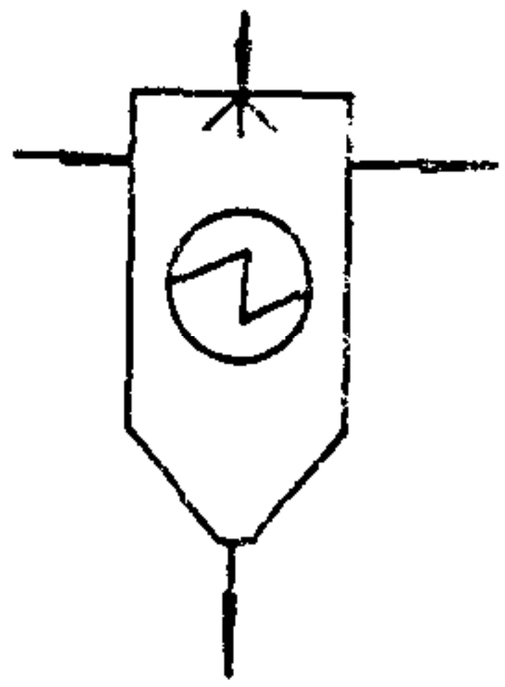
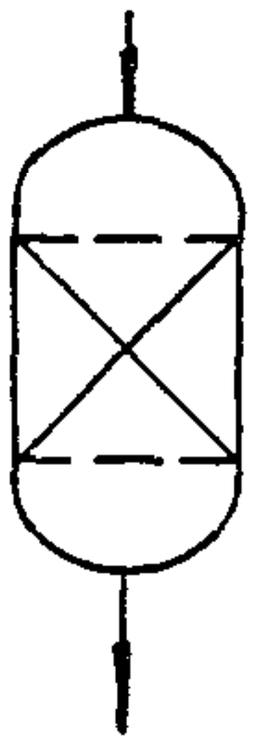
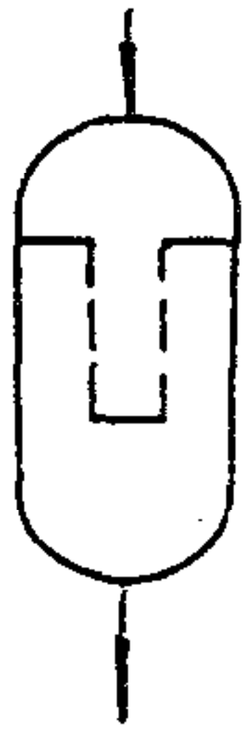
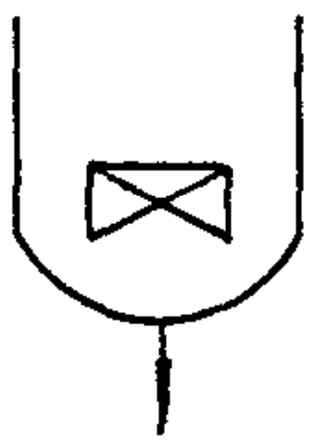
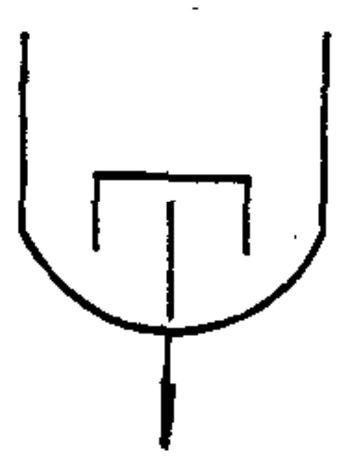
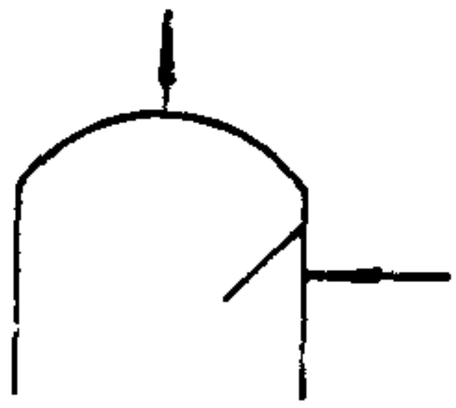
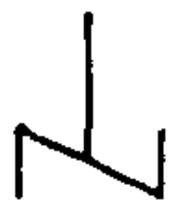
| 类别 | 代号 | 图例 |
|---|---|---|
| 塔内件 | |  湍球塔 |
| | |  筛板塔塔板 |
| | |  分配(分布)器、喷淋器 |
| | |  (丝网)除沫层 |
| | |  填料除沫层 |
| 反应器 | R |  固定床反应器 |
| | |  列管式反应器 |
| | |  流化床反应器 |
| | |  反应釜(带搅拌、夹套) |

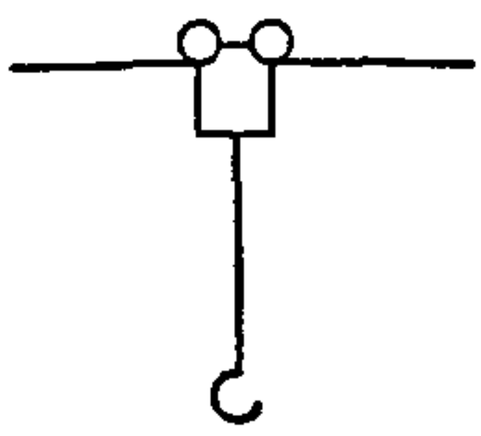
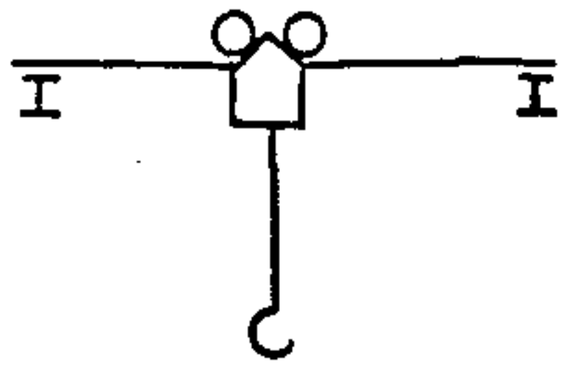
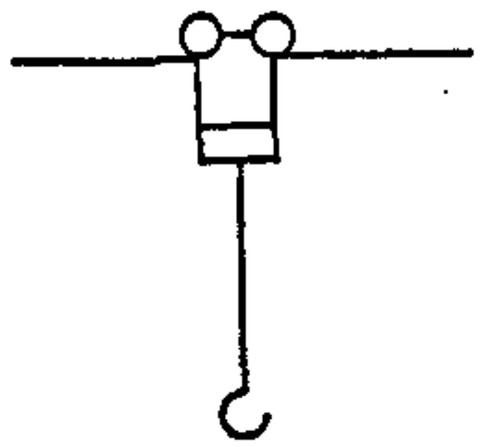
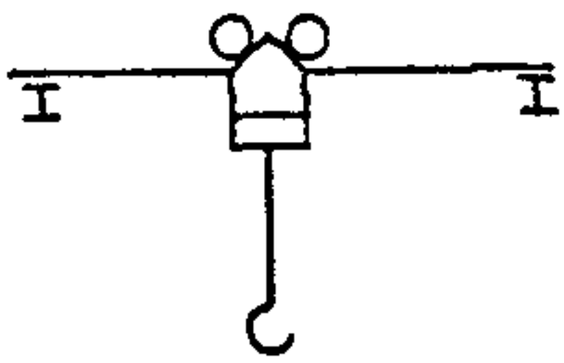
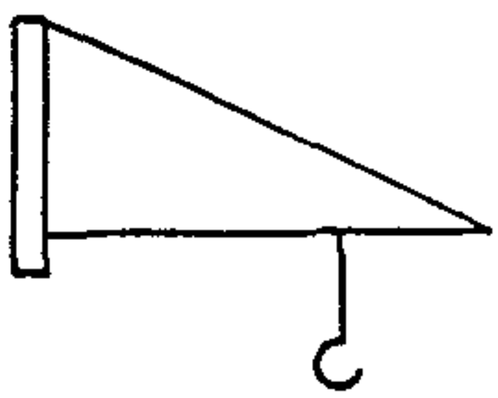
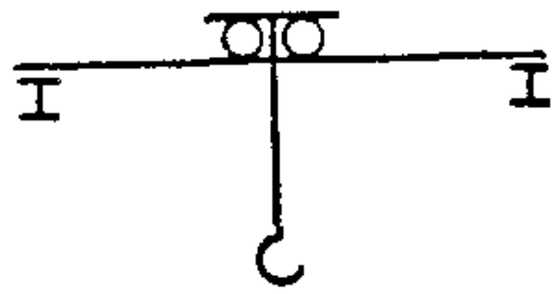
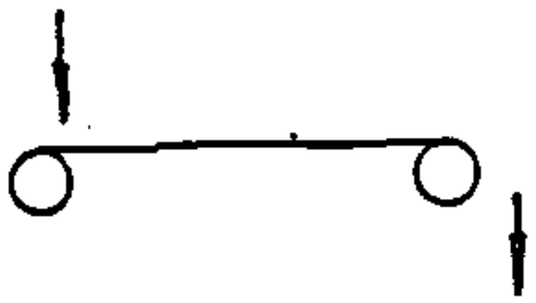
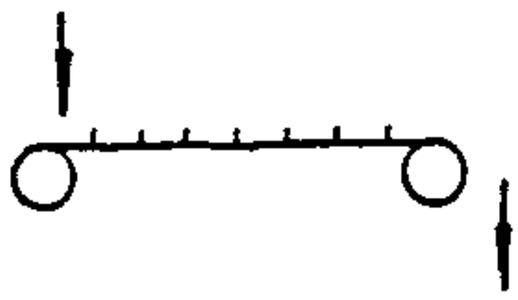
| 类别 | 代号 | 图例 |
| --- | --- | --- |
| 工业炉 | F |  箱式炉  圆筒炉  圆筒炉 |
| 火炬烟囱 | S |  烟囱  火炬 |
| 换热器 | E |  换热器(简图)  固定管板式列管换热器  U型管式换热器  浮头式列管换热器  套管式换热器  釜式换热器 |

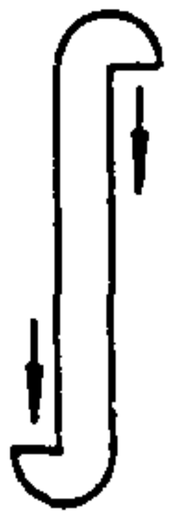
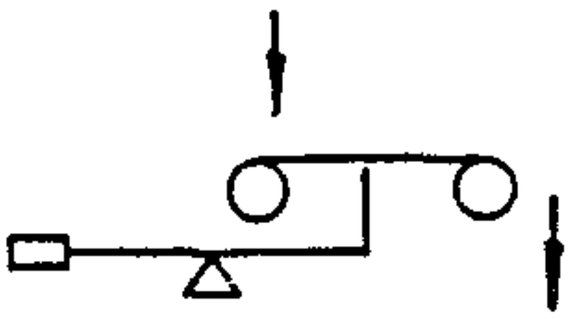
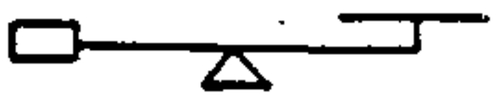
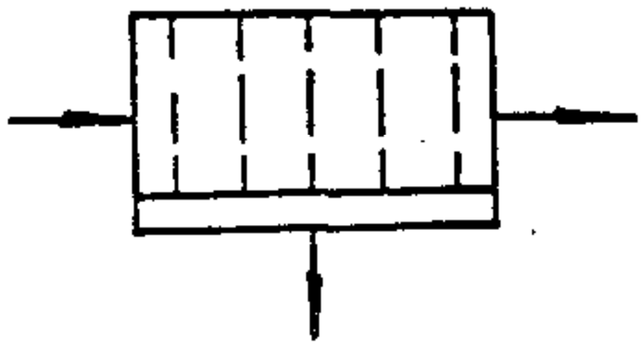
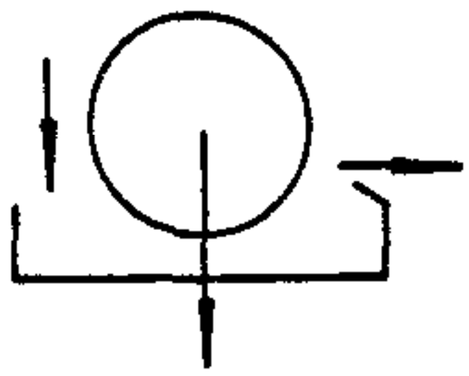
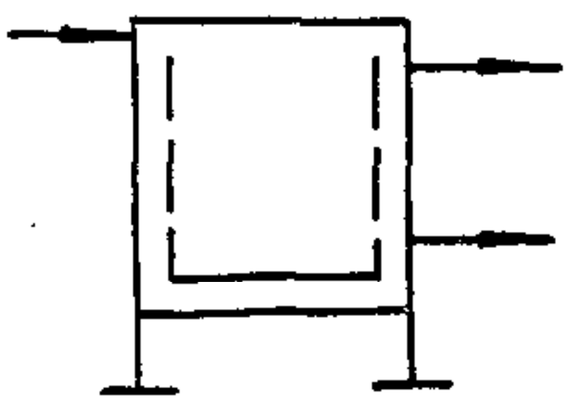
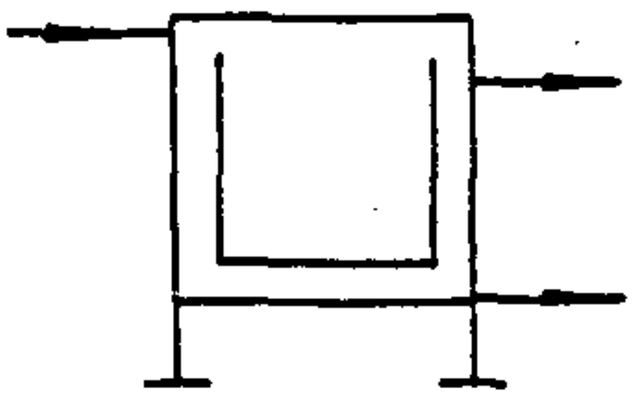
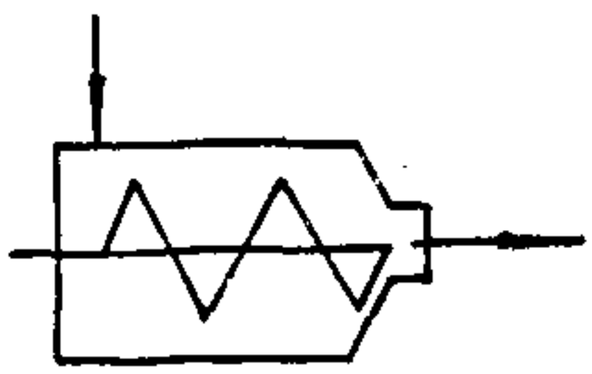
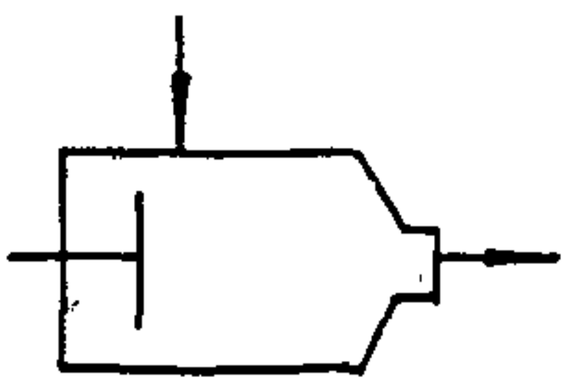
| 类别 | 代号 | 图例 |
| --- | --- | --- |
| 换热器 | E | 板式换热器  |
| | | 螺旋板式换热器  |
| | | 翅片管换热器  |
| | | 蛇管式(盘管式)换热器  |
| | | 喷淋式冷却器  |
| | | 刮板式薄膜蒸发器  |
| | | 列管式(薄膜)蒸发器  |
| | | 抽风式空冷器  |
| | | 送风式空冷器  |
| | | 带风扇的翅片管式换热器  |

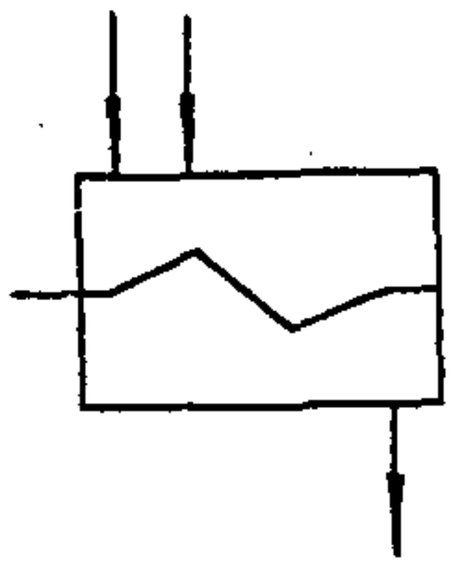
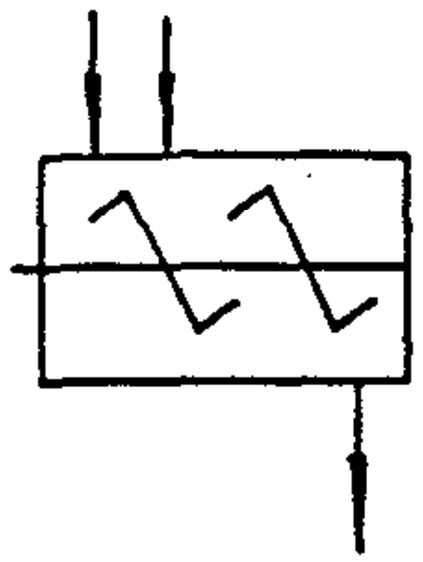
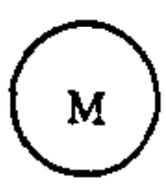
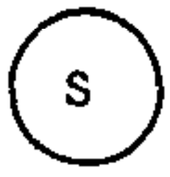
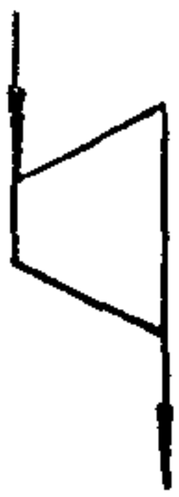
| 类别 | 代号 | 图例 |
| --- | --- | --- |
| | |  离心泵 |
| | |  水环式真空泵 |
| | |  旋转泵　齿轮泵 |
| 泵 | P |  螺杆泵 |
| | |  往复泵 |
| | |  隔膜泵 |
| | |  液下泵 |
| | |  喷射泵 |
| | |  旋涡泵 |
| | |  鼓风机 |
| | |  (卧式) |
| 压缩机 | C |  (立式) 旋转式压缩机 |
| | |  离心式压缩机 |
| | |  往复式压缩机 |
| | |  二段往复式压缩机(L 型) |
| | |  四段往复式压缩机 |

| 类别 | 代号 | 图　　例 |
|---|---|---|
| 容器 | V |  锥顶罐 |
| | |  (地下/半地下) 池、槽、坑 |
| | |  浮顶罐 |
| | |  圆顶锥底容器 |
| | |  蝶形封头容器 |
| | |  平顶容器 |
| | |  干式气柜 |
| | |  湿式气柜 |
| | |  球罐 |
| | |  卧式容器 |
| | |  卧式容器 |
| | |  填料除沫分离器 |
| | |  丝网除沫分离器 |
| | |  旋风分离器 |

| 类别 | 代号 | 图例 | |
|---|---|---|---|
| 容器 | V |  |  |
| | | 干式电除尘器 | 湿式电除尘器 |
| | |  |  |
| | | 固定床过滤器 | 带滤筒的过滤器 |
| 设备内件附件 | |  |  |
| | | 防涡流器 | 插入管式防涡流器 |
| | |  | |
| | | 防冲板 | |
| | |  |  |
| | | 加热或冷却部件 | 搅拌器 |

| 类别 | 代号 | 图例 |
| --- | --- | --- |
| 起重运输机械 | L |  手拉葫芦(带小车) |
| | |  单梁起重机(手动) |
| | |  电动葫芦 |
| | |  单梁起重机(电动) |
| | |  旋转式起重机<br>悬臂式起重机 |
| | |  吊钩桥式起重机 |
| | |  带式输送机 |
| | |  刮板输送机 |

| 类别 | 代号 | 图例 | |
|---|---|---|---|
| 起重运输机械 | L |  斗式提升机 |  手推车 |
| 秤量机械 | W |  带式定量给料秤 |  地上衡 |
| 其它机械 | M |  压滤机 |  转鼓式(转盘式)过滤机 |
| | |  有孔壳体离心机 |  无孔壳体离心机 |
| | |  螺杆压力机 |  挤压机 |

| 类别 | 代号 | 图例 |
| --- | --- | --- |
| 其它机械 | M |  揉合机  混合机 |
| 动力机 | M |  电动机 |
| | E |  内燃机、燃气机 |
| | S |  汽轮机 |
| | D |  其它动力机 |
| | |  离心式膨胀机、透平机 |
| | |  活塞式膨胀机 |