



中华人民共和国国家标准

GB/T 38110—2019

煤矿采矿技术文件用图形符号

Graphical symbols for the technical documentation of coal mining

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前 言

本标准按照 GB/T 1.1—2009 给出的规则起草。

本标准由中国煤炭工业协会提出并归口。

本标准起草单位：西安科技大学、陕西欣源科技有限公司、中煤西安设计工程有限责任公司。

本标准主要起草人：马中骥、秋兴国、马劲、尉朝闻、刘铁鸣、刘培勇。

煤矿采矿技术文件用图形符号

1 范围

本标准规定了煤矿采矿技术文件用图形符号及其设计和使用规则。

本标准适用于煤矿设计、生产、科研、教学、书刊及管理等方面的技术文件,用以绘制有关煤矿采矿工程的设计图、示意图、简图,如矿区布置图、井田开拓平面图、煤层采掘工程平面图、采区巷道布置及机械配备图、工业场地安全煤柱图、煤矿安全自动化监测系统图、煤矿安全设施布置图、煤矿防尘系统图、通风系统图等。

2 规范性引用文件

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件,仅注日期的版本适用于本文件。凡是不注日期的引用文件,其最新版本(包括所有的修改单)适用于本文件。

GB/T 16900 图形符号表示规则 总则

GB/T 16901.1 技术文件用图形符号表示规则 第1部分:基本规则

GB/T 16901.2 技术文件用图形符号表示规则 第2部分:图形符号(包括基准符号库中的图形符号)的计算机电子文件格式规范及其交换要求

GB/T 17450 技术制图 图线

GB/T 20001.2 标准编写规则 第2部分:符号标准

3 图形符号的设计和使用规则

3.1 图形符号的设计应符合 GB/T 16900、GB/T 16901.1、GB/T 16901.2 及 GB/T 20001.2 的规定。

3.2 图形符号应根据表达对象的基本形状、结构特征进行设计,应清晰简捷、易于绘制、易懂易记、易于区分。

3.3 图形符号应按 GB/T 16901.1 的基本规则,设计在标准模数 M 的基本点阵中,宜用 $0.125 M$ 点阵系统,以规范图形符号的尺寸比例。

3.4 图形符号应按 GB/T 17450 中规定的线型绘制。在同一设计图纸中,巷道线型的宽度为 b ,边界线为 $b/2$,其他图形符号为 $b/3$,图形符号的细线为 $b/4$;图形符号中的字宜用 6 号宋体。

3.5 表示方向的箭头,宜用细实线绘制,头部角度应为 $45^\circ \sim 60^\circ$ 。

3.6 使用图形符号时,可根据需要对图形符号在不同方向按相同比例或不同比例作适当调整,但应完全传递原图形符号的信息。

3.7 使用图形符号时,可采用国际标准、其他国家的标准规定的符号,或自行设计符号,但应注明其含义。

4 图形符号

4.1 岩石、煤、煤层及材料图形符号

岩石、煤、煤层及材料图形符号见表 1。

表 1 岩石、煤、煤层及材料图形符号

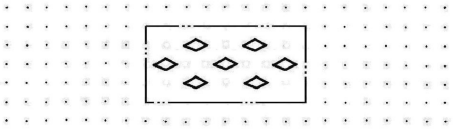
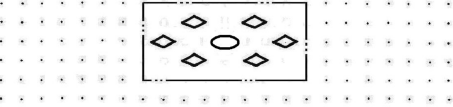
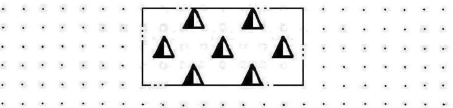
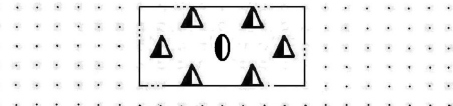
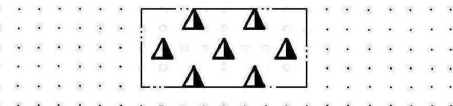
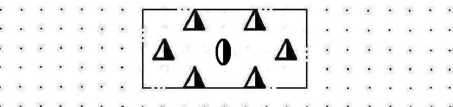
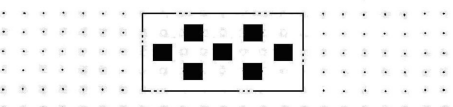
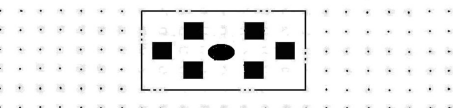
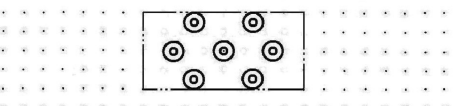
编 号	图 形 符 号	名 称	说 明
1-01		菱铁矿 siderite	
1-02		菱铁矿结核 siderite accretion	
1-03		赤铁矿 hematite	
1-04		赤铁矿结核 hematite accretion	
1-05		褐铁矿 limonite	
1-06		褐铁矿结核 limonite accretion	
1-07		黄铁矿 pyrite	
1-08		黄铁矿结核 pyrite accretion	
1-09		铝土矿 bauxite	

表 1 (续)

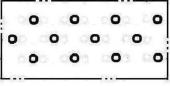
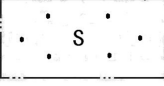
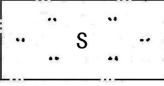
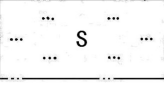
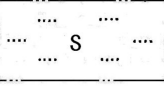
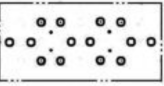
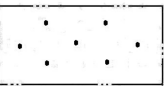
编 号	图 形 符 号	名 称	说 明
1-10		覆盖土 capping soil; coverture soil	主要指表土、壤土、 积土层、淤泥
1-11		黄土 loess	主要指风成黄土
1-12		砾石 gravel; pebble	
1-13		粗砂 top sand	S: 砂
1-14		中砂 medium sand	
1-15		细砂 fine sand	
1-16		粉砂 silty sand	
1-17		砂质砾岩 sandy conglomerate	
1-18		粗砂岩 gritstone	

表 1 (续)

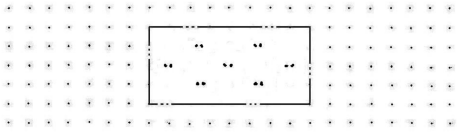
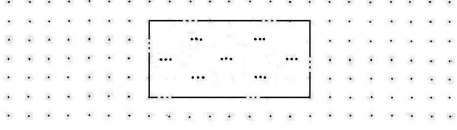
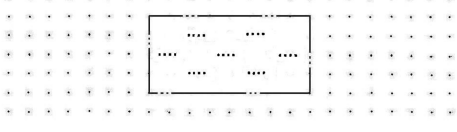
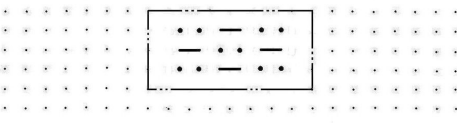
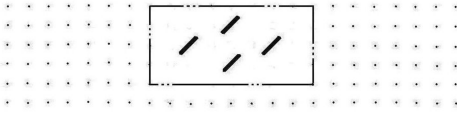
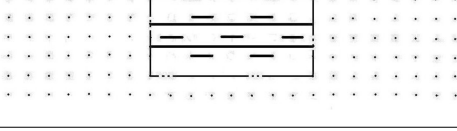
编 号	图 形 符 号	名 称	说 明
1-19		中砂岩 medium sandstone	
1-20		细砂岩 fine sandstone	
1-21		粉砂岩 siltstone	
1-22		泥质砂岩 argillaceous sandstone	
1-23		碳质粉砂岩 carbonaceous siltstone	
1-24		泥岩 mudstone	
1-25		泥炭 peat	
1-26		天然焦 natural coke; coke	
1-27		煤 coal	

表 1 (续)

编 号	图 形 符 号	名 称	说 明
1-28		煤及夹石 coal and horse; coal and band	
1-29		煤层尖灭 thin out of coal seam; pinch-out of coal seam	
1-30		煤层分叉 coal seam split; bifurcation of coal seam	
1-31		炭质页岩 carbonaceous shale	
1-32		炭质泥岩 carbon mudstone	
1-33		油页岩 oil shale	
1-34		砂质页岩 sandy shale; arenaceous shale	
1-35		铝质页岩 aluminous shale	
1-36		石灰岩 limestone	

表 1 (续)

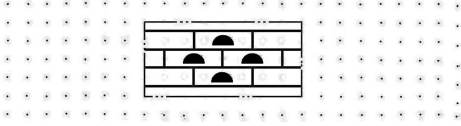
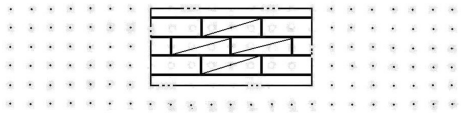
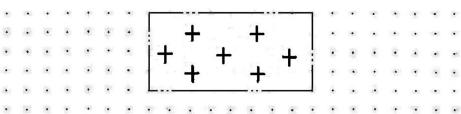
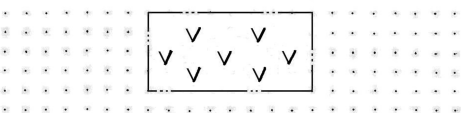
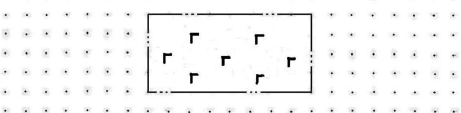
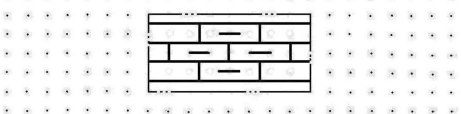
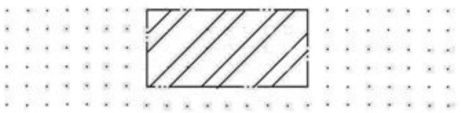
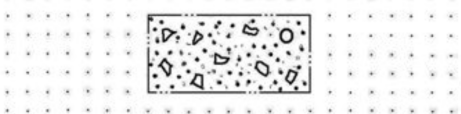
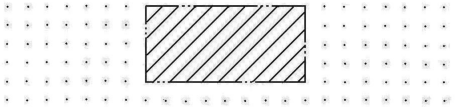
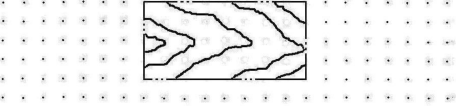
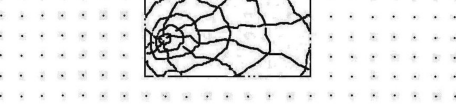
编 号	图 形 符 号	名 称	说 明
1-37		燧石灰岩 flint-containing limestone	
1-38		料石 dressed stone	
1-39		花岗岩 granite	
1-40		安山岩 andesite	
1-41		玄武岩 basalt	
1-42		泥质灰岩 argillaceous limestone	
1-43		金属材料 metal	国家标准中已有规定的剖面符号除外
1-44		混凝土 concrete	
1-45		钢筋混凝土 reinforced concrete	

表 1（续）

编 号	图 形 符 号	名 称	说 明
1-46		砖 brick	
1-47		木材 wood	纵剖面
1-48			横剖面

4.2 边界线图形符号

边界线图形符号见表 2。

表 2 边界线图形符号

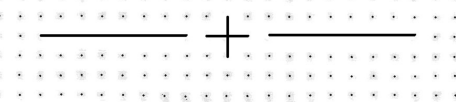
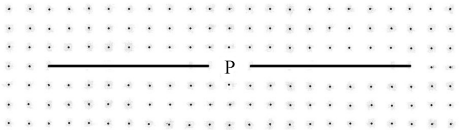
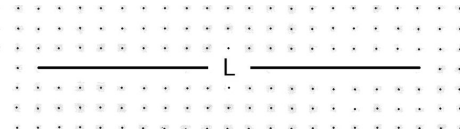
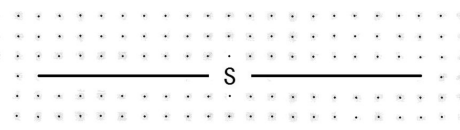
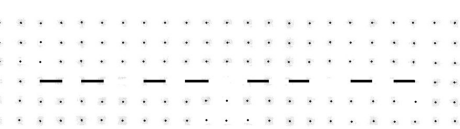
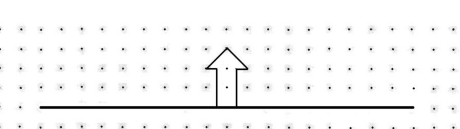
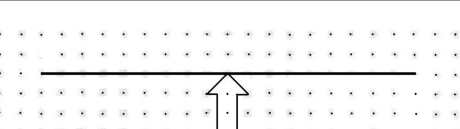
编 号	图 形 符 号	名 称	说 明
2-01		煤田边界线 coal basin boundary line	
2-02		矿区边界线 mining area boundary line	
2-03		勘探区边界线； 露天开拓深部境界线 exploration area boundary line； floor boundary line	
2-04		井田边界线 well field boundary line	

表 2 (续)

编 号	图 形 符 号	名 称	说 明
2-05		采区边界线; 露天开拓地表境界线 producing area boundary line; surface boundary line	
2-06		煤厚为零点边界线 boundary line for zero thick- ness of coal seam	
2-07		煤层可采边界线 boundary line of minable seam	
2-08		煤矿占地边界线 site boundary line of land occupancy of coal mine	煤矿占地包括露天 排土场
2-09		煤柱边界线 boundary line of coal pillars	注明煤柱名称、批准 机关及文号， 符号可用红色
2-10		煤层分叉合并线 merge line of splitting of coal seam	角尖指向合并区
2-11		煤种界线 demarcation line of coal specie	QM:气煤 SM:瘦煤
2-12		爆破危险区界线 boundary line of demolition danger area	
2-13		排土场界线 boundary line of spoil dump field	

表 2（续）

编 号	图 形 符 号	名 称	说 明
2-14		排土线 spoil dump line	P: 排土线
2-15		绿化区边界线 green spot boundary line	L: 绿化区边界线
2-16		生态保护区边界线 ecological protection boundary line	S: 生态保护区边界线
2-17		防护林带边界线 shelter belt boundary line	
2-18		始采线 beginning line	
2-19		终采线 terminal line	

4.3 钻井(孔)与井筒图形符号

钻井(孔)与井筒图形符号见表 3。

表 3 钻井(孔)与井筒图形符号

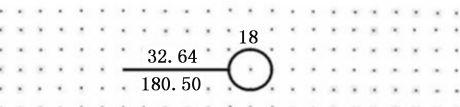
编 号	图 形 符 号	名 称	说 明
3-01		地面设计钻孔 designed surface drillhole	18:孔号 32.64:孔口高程(m) 180.50 孔深(m)

表 3 (续)

编 号	图 形 符 号	名 称	说 明
3-02		井下设计钻孔 designed underground drill-hole	18:孔号 32.64:孔口高程(m) 180.50 孔深(m)
3-03		地面可见煤钻孔 meet with coal surface drill-hole	在地形图上,左边只注孔口高程;在煤层底板等高线图、采掘工程图上,左上注孔口高程,右边注煤层可采厚度、钻孔质量级别(采掘工程图可不标注)
3-04		井下可见煤钻孔 meet with coal underground drill-hole	
3-05		地面未见煤钻孔 without meet with coal surface drill-hole	左边注孔口高程。水平剖面图采用此符号时,不标注高程
3-06		井下未见煤钻孔 without meet with coal underground drill-hole	
3-07		地面可见煤斜孔 meet with coal inclined surface hole	黑圆点为钻孔见煤点的投影位置; 在地形地质图上钻孔涂黑; 虚线表示钻孔孔口至孔底的投影长度
3-08		井下可见煤斜孔 meet with coal inclined underground hole	
3-09		地面未见煤斜孔 without meet with coal inclined surface hole	用于底板等高线图。左边注孔口高程,小圆圈为推断煤层层位的投影位置
3-10		井下未见煤斜孔 without meet with coal inclined underground hole	

表 3（续）

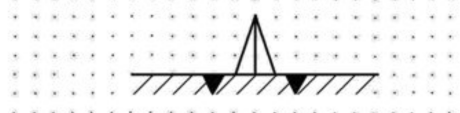
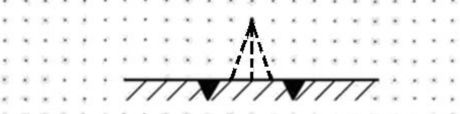
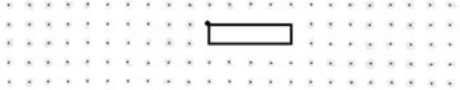
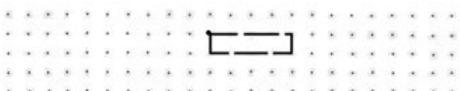
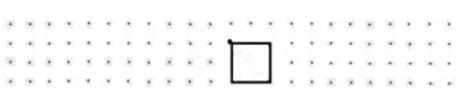
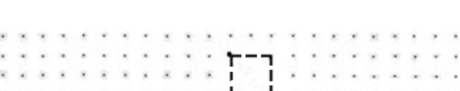
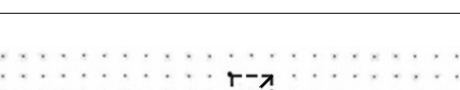
编 号	图 形 符 号	名 称	说 明
3-11		地面报废孔 abandoned surface hole	
3-12		井下报废孔 abandoned underground hole	
3-13		钻孔 drillhole	用于剖面图
3-14		设计钻孔 designed drillhole	用于剖面图
3-15		探槽 prospecting trench	左上角为坐标定位点
3-16		设计探槽 designed prospecting trench	
3-17		探井 exploratory shaft	
3-18		设计探井 designed exploratory shaft	
3-19		探坑 prospecting pit	
3-20		设计探坑 designed prospecting pit	

表 3 (续)

编 号	图 形 符 号	名 称	说 明
3-21		圆形立井 circular vertical shaft	符号上边注井号,右边注用途,如提升、通风等; 上面箭头向下表示进风,箭头向上表示出风; 左上方注井口高程,左下方注井底高程
3-22		矩形立井 rectangular vertical shaft	
3-23		圆形暗立井 circular blind vertical shaft	
3-24		矩形暗立井 rectangular blind vertical shaft	
3-25		圆形通风井 circular ventilating shaft	井下通风、溜煤、储煤仓等小竖井均按此符号绘制; 右边注用途; 左上边注井口高程,左下边注井底高程
3-26		矩形通风井 rectangular ventilating shaft	
3-27		斜井 inclined shaft	左侧注井口高程; 右侧注用途; 箭头下注井斜度
3-28		暗斜井 blind inclined shaft	
3-29		电缆井 cable shaft	

表 3 (续)

编 号	图 形 符 号	名 称	说 明
3-30		瓦斯井 gas shaft	
3-31		圆形斜煤仓 circular inclined pocket	左上注仓口高程； 左下注仓底高程； 箭头下注煤仓斜度； 虚线表示有人行道
3-32		拱形斜煤仓 arch inclined pocket	
3-33		矩形斜煤仓 rectangular inclined pocket	
3-34		立煤仓 vertical pocket	
3-35		报废井 abandoned shaft	包括古井 符号中“×”可用 红色
3-36		平硐 adit	符号可用红色
3-37		生产小窑 production goaf	
3-38		报废小窑 abandoned goaf	符号可用红色

4.4 巷道图形符号

巷道图形符号见表4。

表4 巷道图形符号

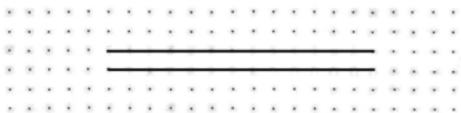
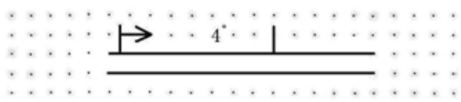
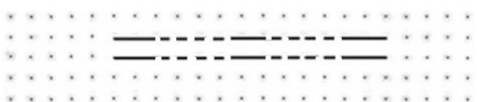
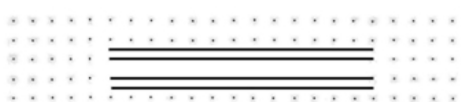
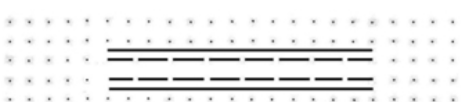
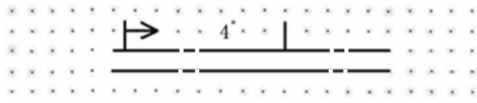
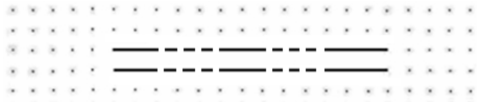
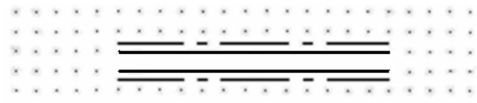
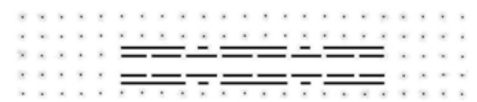
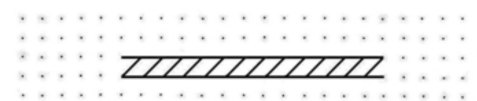
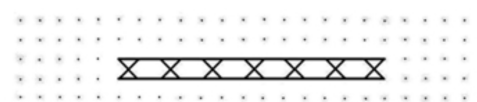
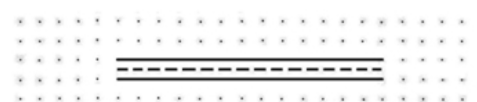
编 号	图 形 符 号	名 称	说 明
4-01		煤层巷道 coal seam drift	1 : 500 ~ 1 : 2 000 巷道以实际宽度按比例绘制； 在剖视图中,当巷道位于剖切面的前方时,用虚线表示,当巷道位于剖切面的后方时,用双点划线表示。1 : 5 000 ~ 1 : 10 000巷道,可用单实线加标注表示。 4°: 煤层斜巷坡度
4-02		煤层斜巷 inclined coal stratum tunnel	
4-03		煤层支架巷道 coal seam support drift	
4-04		煤层砌碛巷道 coal seam arch-setting drift	
4-05		煤层锚喷巷道 coal seam blotting and shot-creting drift	
4-06		岩层平巷 rock stratum tunnel	

表 4（续）

编 号	图 形 符 号	名 称	说 明
4-07		岩层斜巷 inclined rock stratum tunnel	1 : 500 ~ 1 : 2 000 巷道以实际宽度按比例绘制； 在剖视图中，当巷道位于剖切面的前方时，用虚线表示，当巷道位于剖切面的后方时，用双点划线表示。1 : 5 000 ~ 1 : 10 000巷道，可用单实线加标注表示。 4°：岩层斜巷坡度
4-08		岩层支架巷道 rock stratum support drift	
4-09		岩层砌碛巷道 rock stratum arch-setting drift	
4-10		岩层锚喷巷道 rock stratum blotting and shotcreting drift	
4-11		利用的已有巷道 in-use existing drift	
4-12		不利用的已有巷道 out-of-use existing drift	
4-13		裸体巷道 unsupported drift	
4-14		规划的后期巷道 late drift of plan	

4.5 采掘循环图表图形符号

采掘循环图表图形符号见表 5。

表 5 采掘循环图表图形符号

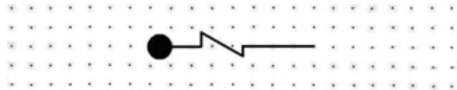
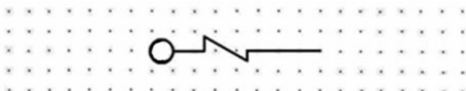
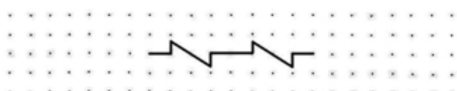
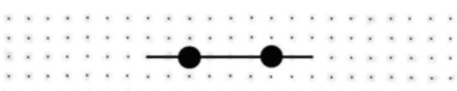
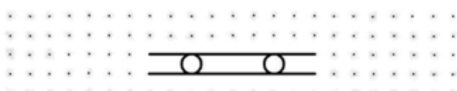
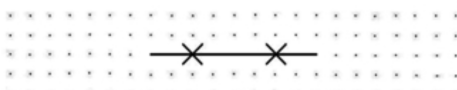
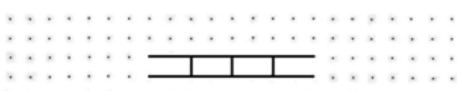
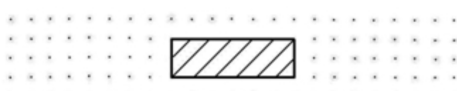
编 号	图 形 符 号	名 称	说 明
5-01		钻煤孔 punch a coal hole	
5-02		钻岩孔 punch a rock hole	
5-03		放炮 initiating	
5-04		支柱 pillar supporting	
5-05		运料 material transport	
5-06		回柱、放顶 prop drawing; caving the roof	
5-07		移输送机 remove the conveyor	
5-08		装煤、运煤 load the coal; transport the coal	

表 5 (续)

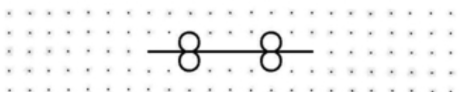
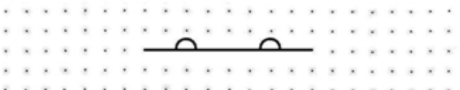
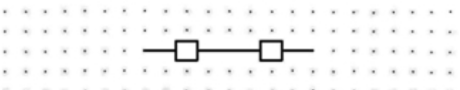
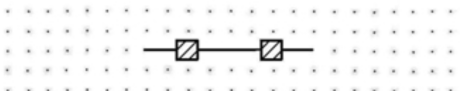
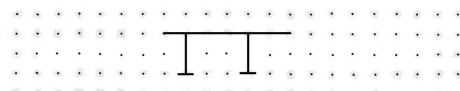
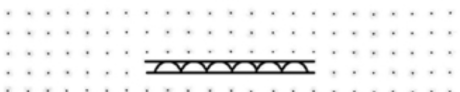
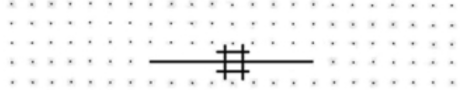
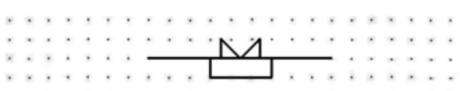
编 号	图 形 符 号	名 称	说 明
5-09		打密集支柱 install breaker props	
5-10		准备及检修 preparation and maintenance	
5-11		移支柱 remove the prop	
5-12		移支架 remove the support	
5-13		超前支护 advance shield	
5-14		移压气管 remove the air pipe	
5-15		支木垛 support the cog	
5-16		回收木垛 retrieve cog	
5-17		刨煤机刨煤 ploughing	

表 5 (续)

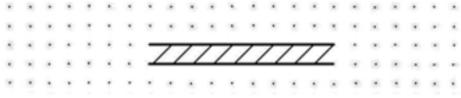
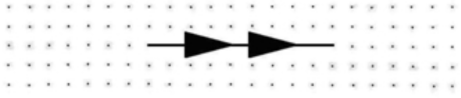
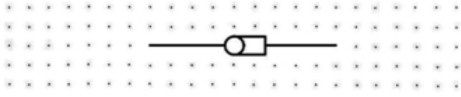
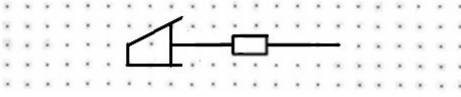
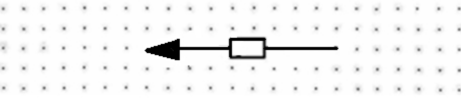
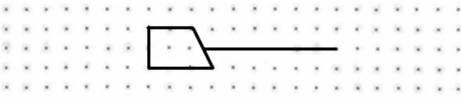
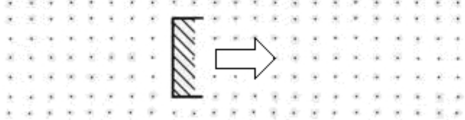
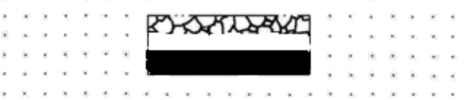
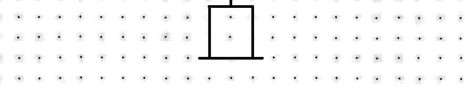
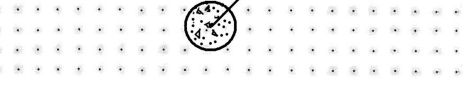
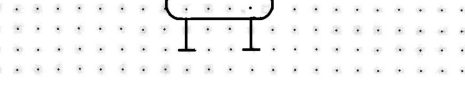
编 号	图 形 符 号	名 称	说 明
5-18		开缺口 niche	
5-19		采煤机割煤 winning	
5-20		采煤机下放 shearer get down	
5-21		气镐落煤 air picking	
5-22		采煤机放顶 shearer caving the roof	
5-23		采煤填充 mine coal stowing	
5-24		煤巷掘进 coal drifting	
5-25		岩巷掘进 rock tunneling	
5-26		铺金属网及底梁 lay metal mesh and base beam	

表 5（续）

编 号	图 形 符 号	名 称	说 明
5-27		回采工作面推进方向 direction of mining	
5-28		采空区填充 goaf filling	
5-29		巷帮填充 drift side filling	
5-30		锚杆支护 bolt shield	
5-31		喷浆支护 concrete spraying shield	
5-32		储气罐 gasholder	

4.6 采掘安全设施图形符号

采掘安全设施图形符号见表 6。

表 6 采掘安全设施图形符号

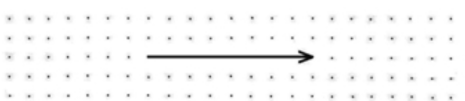
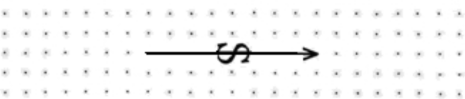
编 号	图 形 符 号	名 称	说 明
6-01		进风风流 intake airflow	
6-02		回风风流 return airflow	

表 6 (续)

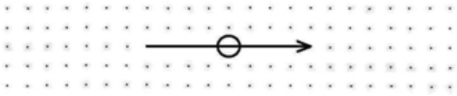
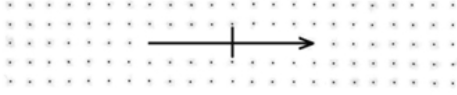
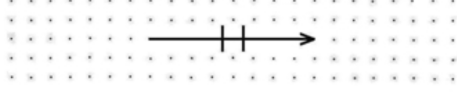
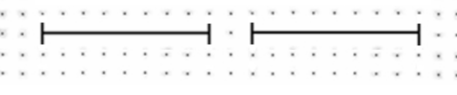
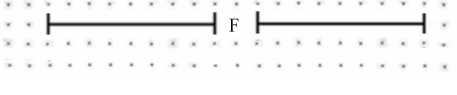
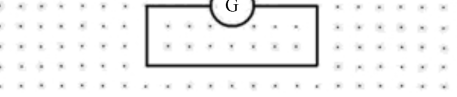
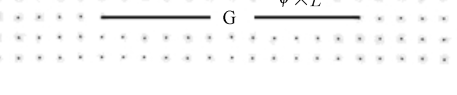
编 号	图 形 符 号	名 称	说 明
6-03		漏风风流 air leakage	
6-04		串联风 series ventilation	
6-05		二次串联风 twice series ventilation	
6-06		硬质风筒 hard air duct	
6-07		柔质风筒 soft air duct	F: flexible
6-08		抽采瓦斯泵站 gas extraction station	G: gas 符号可用红色
6-09		抽采瓦斯管 gas extraction pipe	G: 管 $\phi \times L$: 管径×管长; 符号可用红色
6-10		风门开关 air door switch	
6-11		风筒开关 air duct switch	

表 6（续）

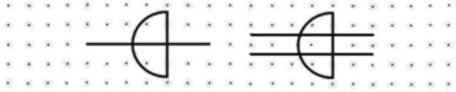
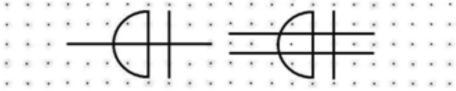
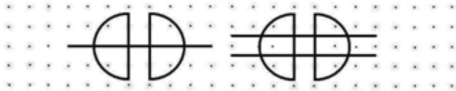
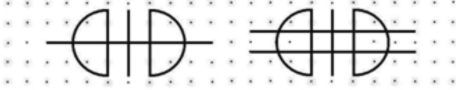
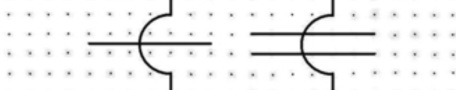
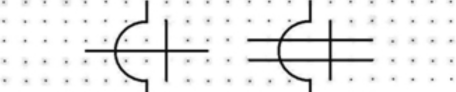
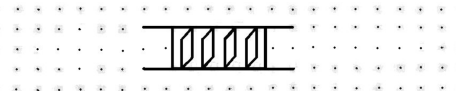
编 号	图 形 符 号	名 称	说 明
6-12		临时单向风门 temporary one-way air door	风 流 方 向 为 由 左 向 右 ； 左 边 符 号 用 于 通 风 系 统 图
6-13		永久单向风门 permanent one-way air door	
6-14		临时双向风门 temporary two-way air door	
6-15		永久双向风门 permanent two-way air door	
6-16		临时调节风门 temporary air regulator	
6-17		永久调节风门 permanent air regulator	
6-18		调节风窗 air regulator	
6-19		夹风墙 air compartment	

表 6 (续)

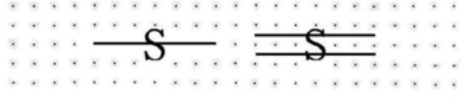
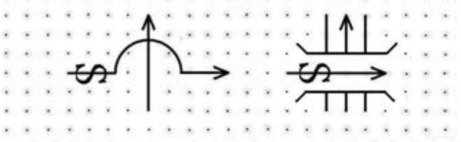
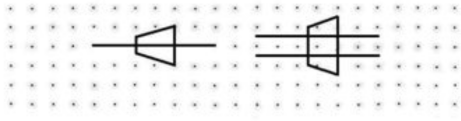
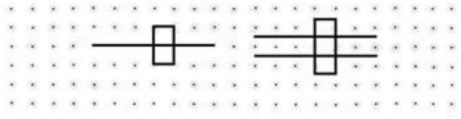
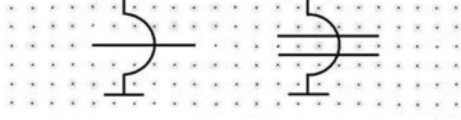
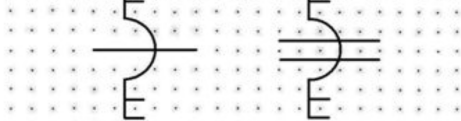
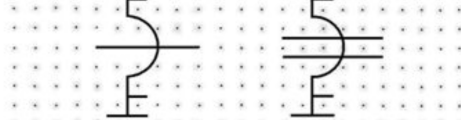
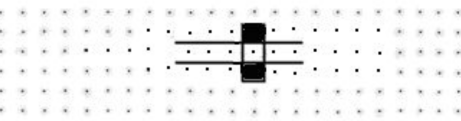
编 号	图 形 符 号	名 称	说 明
6-20		风帘 air curtain	风 流 方 向 为 由 左 向 右； 左 边 符 号 用 于 系 统 图
6-21		风桥 air crossing	
6-22		防水闸门 flood defense door	
6-23		防水墙 flood defense dam	
6-24		防火门 fire door	
6-25		栅栏门 railing door	
6-26		防火栅栏两用门 fire protection and railing door	上 下 两 边 方 块 可 用 红 色
6-27		防火门墙 fire door wall	

表 6（续）

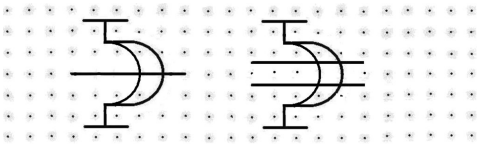
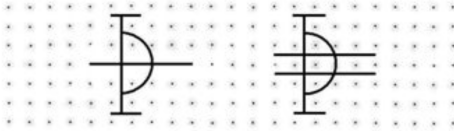
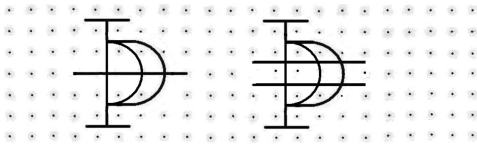
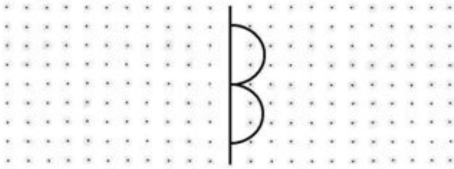
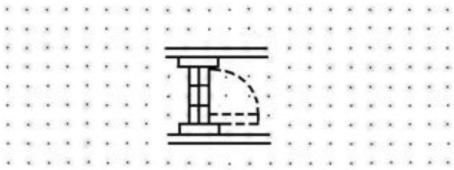
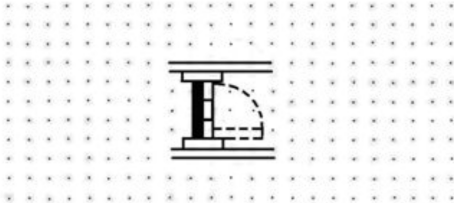
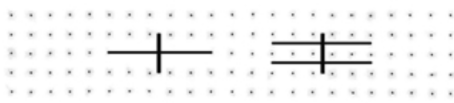
编 号	图 形 符 号	名 称	说 明
6-28		防火门硇室 fire door chamber	左 边 符 号 用 于 系 统 图
6-29		密闭门 airtight door	
6-30		密闭门硇室 airtight door chamber	
6-31		防爆门 explosion protection door	
6-32		抗冲击波门 shockwave resistant door	
6-33		抗冲击波密闭门 airtight shockwave resistant door	
6-34		临时密闭 temporary airtight	左 边 符 号 用 于 系 统 图

表 6 (续)

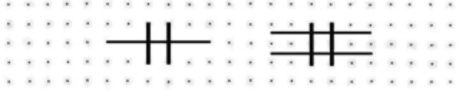
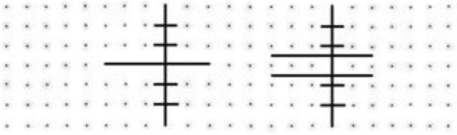
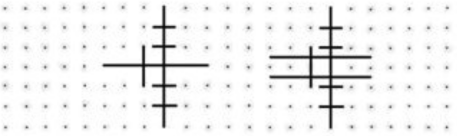
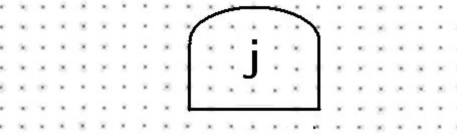
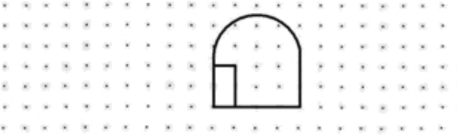
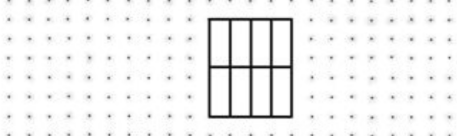
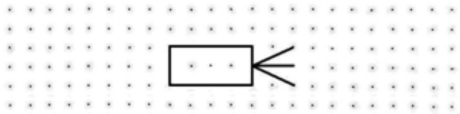
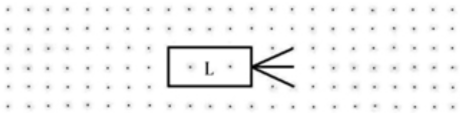
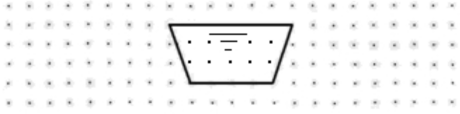
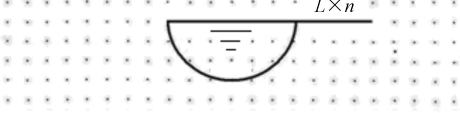
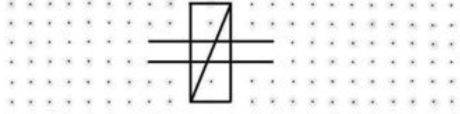
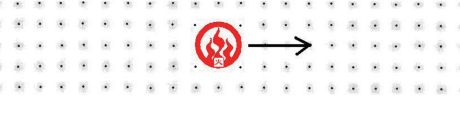
编 号	图 形 符 号	名 称	说 明
6-35		永久密闭 permanent airtight	
6-36		栅栏 railings	左 边 符 号 用 于 系 统 图
6-37		临时密闭加栅栏 temporary airtight with railings	
6-38		避难硐室 refuge chamber	
6-39		救援性避难硐室 refuge chamber with rescue	
6-40		井下爆破材料库 underground demolition magazine	
6-41		井下消防材料硐室 underground fire-fighting material chamber	
6-42		算子门 grate door	

表 6 (续)

编 号	图 形 符 号	名 称	说 明
6-43		立井防爆盖 vertical shaft blast resistant cover	左 边 符 号 用 于 系 统 图
6-44		岩粉棚 rock power shed	
6-45		水仓 drain sump	水 仓 内 可 涂 浅 绿 色
6-46		防尘洒水管 water spray pipe for dust removing	D: dust; φ×L: 管 径 × 管 长
6-47		防尘洒水阀门 water spray valve for dust removing	
6-48		矿用消尘洒水车 dust removing water spray vehicle for mining	
6-49		防尘喷嘴 dust removing spray nozzle	
6-50		水幕 water curtain	
6-51		采煤机外喷嘴 shearer external water spray nozzle	

表 6 (续)

编 号	图 形 符 号	名 称	说 明
6-52		自动喷嘴 automatic spray nozzle	一般符号 不同的喷嘴,可在方框内加注代号,如6-53
6-53		光控式自动喷嘴 light controlled automatic spray nozzle	L: light
6-54		防尘水池 water pond for dust removal	
6-55		水棚 barrier with water	$L \times n$: 每组长度 $\times$ 个数
6-56		水袋 water bag	
6-57		水槽 water trough	
6-58		避水路线 route to avoid water	符 号 颜 色: 0, 255, 255; 做标志牌时,符号用绿色表示
6-59		避火路线 route to avoid fire	符号颜色: 255, 0, 0; 做标志牌时,符号用红色表示

4.7 露天开采工程与环境保护图形符号

露天开采工程与环境保护图形符号见表 7。

表 7 露天开采工程与环境保护图形符号

编 号	图 形 符 号	名 称	说 明
7-01		露天矿滑坡在断面上的表示 opencast landslide cross-section	虚线表示滑落面
7-02		滑坡区 landslide area	
7-03		积水区 waterlogged area	
7-04		利用废巷储水的储水仓 abandoned roadway for water storage	符号涂浅绿色； 横线上注储水仓编号； 横线下注储水仓容量
7-05		排水场的盲沟 blind valley in the drain site	
7-06		疏干巷道 dewatering roadway	箭头表示流水方向； 下边括号内注疏干岩的名称
7-07		排水干渠 main drainage canal	
7-08		煤厚等于 1 m 边界 boundary for 1 m coal thickness	

表 7 (续)

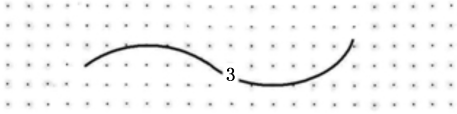
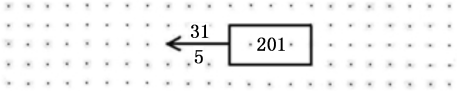
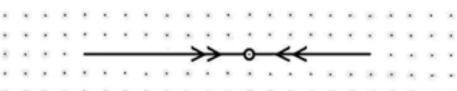
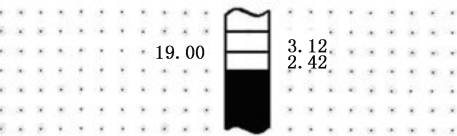
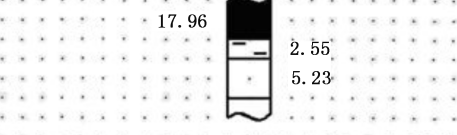
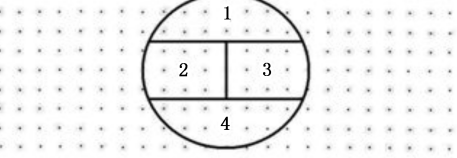
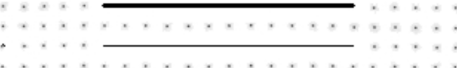
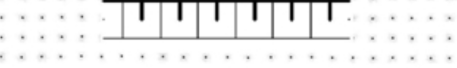
编 号	图 形 符 号	名 称	说 明
7-09		剥采比等值线 stripping ratio isogram	3:剥采比值
7-10		采剥机械位置编号 stripping machinery location number	箭头表示推进方向; 左上注日期,左下注月 份,框内注机械编号
7-11		露天馈电线路 surface feed line	
7-12		顶板柱状 roof columnar section	左侧:煤层顶板高程(m) 右侧:煤层顶板岩层厚度 (m)
7-13		底板柱状 floor columnar section	左侧:煤层底板高程(m) 右侧:煤层底板厚度(m)
7-14		计算块段 estimation block	1:块段号; 2:岩层剥离量(万 m); 3:煤层储量(单位万 t); 4:剥采比
7-15		组合台阶 bench group	
7-16		剥离台阶 stripping bench	
7-17		采煤台阶 excavate coal bench	

表 7（续）

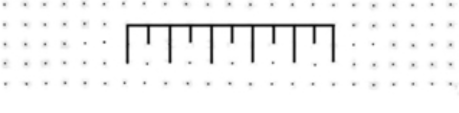
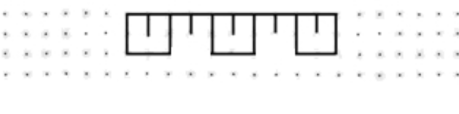
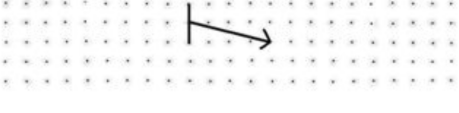
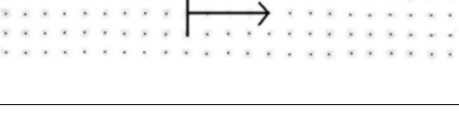
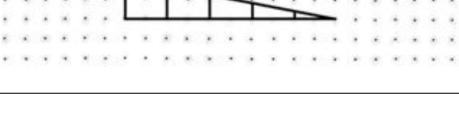
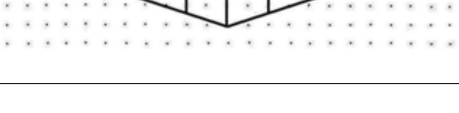
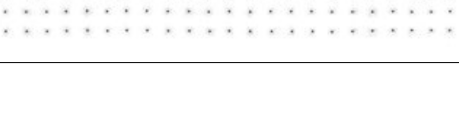
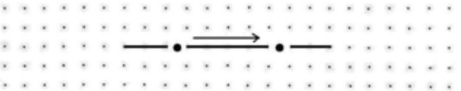
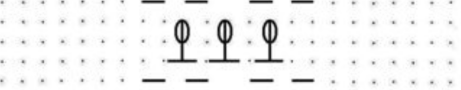
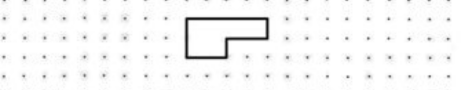
编 号	图 形 符 号	名 称	说 明
7-18		排土台阶 waste dumping bench	
7-19		排土(废石)场 spoil dump area	
7-20		倒装场 casting loading area	
7-21		扇形推进 fan advance	
7-22		平行推进 parallel advance	
7-23		倾斜路堑 slope cutting	
7-24		护坡 protection slop	
7-25		自溜坡道 chute slope	
7-26		明溜槽溜井 chute shaft	

表 7 (续)

编 号	图 形 符 号	名 称	说 明
7-27		斜坡绞车道 winch slope	
7-28		无极绳道 endless rope road	
7-29		绿化小区 green area	
7-30		防护林带 shelter belt	
7-31		环保小溪 environmental protection stream	
7-32		村庄 village	按实际缩绘
7-33		河流 river	按实际缩绘； 凡留有煤柱的沟、谷等均 采用此符号表示
7-34		指北针 compass	

4.8 其他常用图形符号

其他常用图形符号见表 8。

表 8 其他常用图形符号

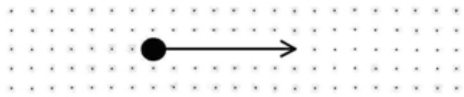
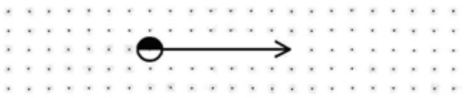
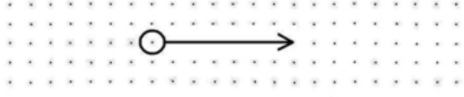
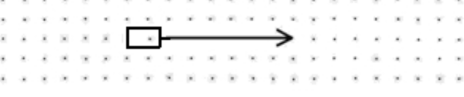
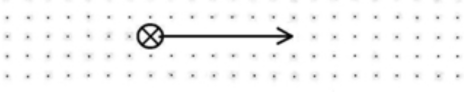
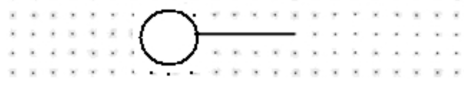
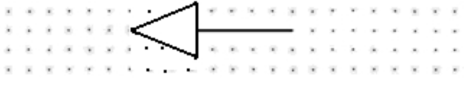
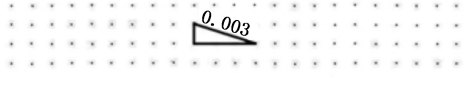
编 号	图 形 符 号	名 称	说 明
8-01		煤车方向 direction of coal loaded car	
8-02		岩石车方向 direction of rock loaded car	
8-03		空车方向 empty car direction	
8-04		机动车运行方向 motor vehicle direction	
8-05		材料设备车方向 material and equipment car direction	
8-06		工程量计算段号 part number of engineering work calculation	断号数字写在圆圈内
8-07		巷道与轨道坡度段号 part number of roadway and track slope	断号数字写在三角形内
8-08		坡度 slope gradient	0.003:坡度数值

表 8 (续)

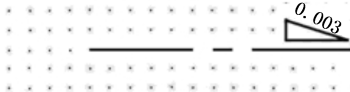
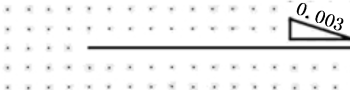
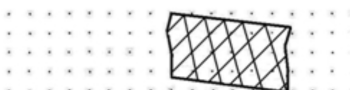
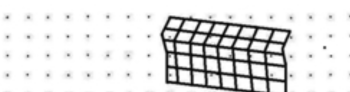
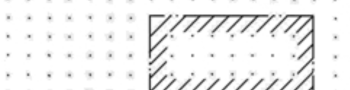
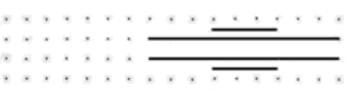
编 号	图 形 符 号	名 称	说 明
8-09		水沟纵断面坡度线 vertical section slope line of a drain	0.003:坡度数值
8-10		轨道纵断面坡度线 vertical section slope line of a track	0.003:坡度数值
8-11		塑料假顶 plastic roof	
8-12		竹笆假顶 bamboo basketry roof	
8-13		荆笆假顶 vitex basketry roof	
8-14		金属网假顶 metal net roof	
8-15		冒顶区 roof fall area	
8-16		测风站 air measuring station	
8-17		地面注浆站 surface grouting station	

表 8 (续)

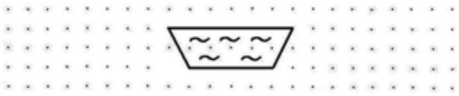
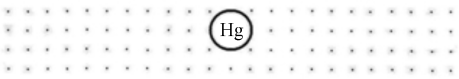
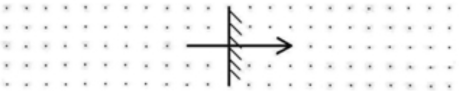
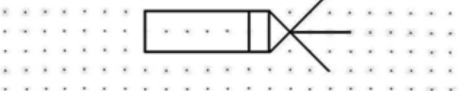
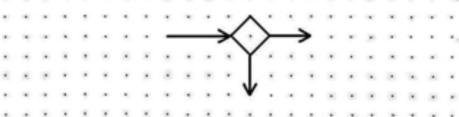
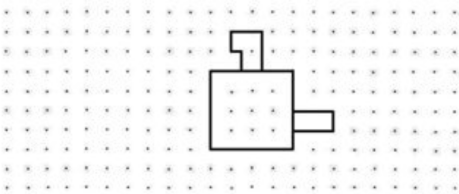
编 号	图 形 符 号	名 称	说 明
8-18		注浆池 grouting pond	
8-19		注浆孔 grouting hole	Hg: grouting hole
8-20		煤体注水 coal seam flooding	
8-21		炮前炮后洒水 water spraying around the blasting	
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8-23		放炮喷雾 blasting spraying	
8-24		炮采喷水器 blasting fountain	
8-25		除尘器 deduster	
8-26		干式除尘器 dry deduster	

表 8 (续)

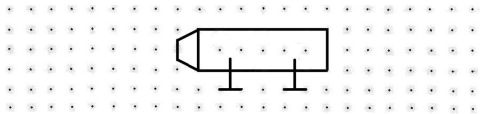
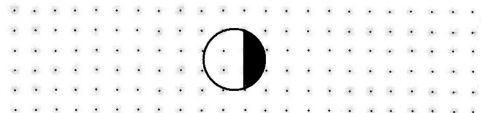
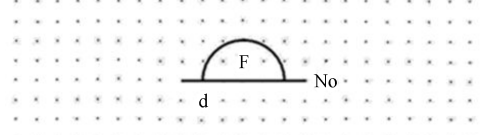
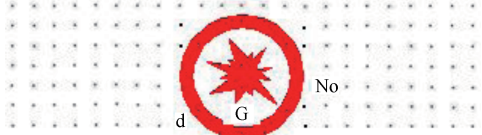
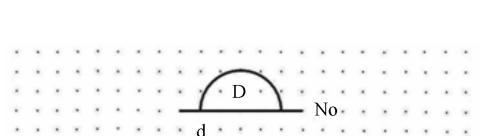
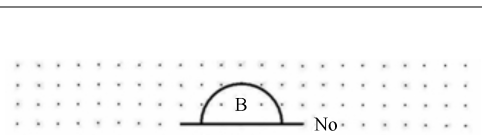
编 号	图 形 符 号	名 称	说 明
8-27		湿式除尘器 wet deduster	
8-28		煤壁片帮区 coal wall caving area	
8-29		矿井突水点 water bursting point in the mine	符号颜色: 0, 255, 255; W: water; d: date(以下同); No: number(以下同)
8-30		井下发火点 underground spontaneous combustion point	符号颜色: 255, 0, 0; F: fire
8-31		已处理井下发火点 underground spontaneous combustion point that has already been handled	F: fire
8-32		瓦斯爆炸地点 gas explosion point	符号颜色: 255, 0, 0; G: gas
8-33		煤尘爆炸地点 coal dust explosion point	D: dust
8-34		煤与瓦斯突出点 coal and gas outburst point	B: burst

表 8 (续)

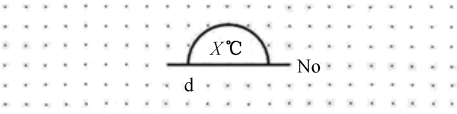
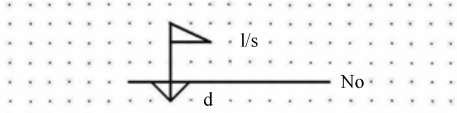
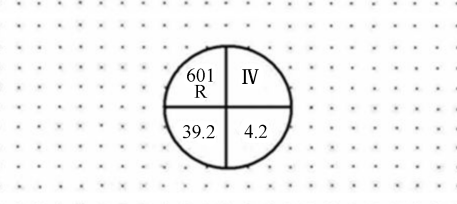
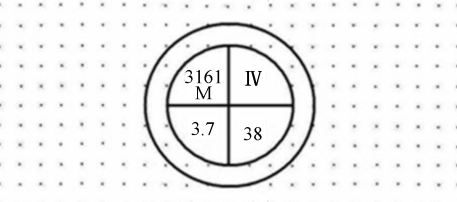
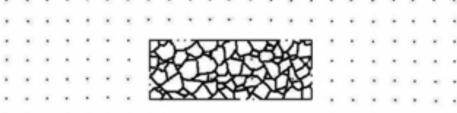
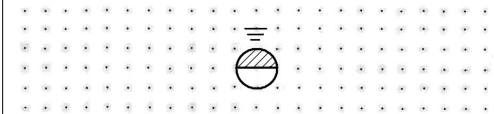
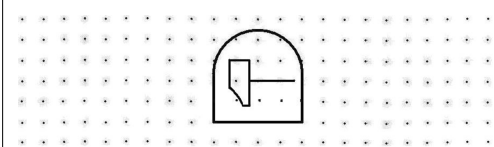
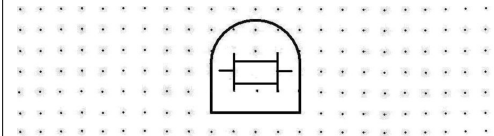
编 号	图 形 符 号	名 称	说 明
8-35		煤层发热区 heat generation area of coal seam	$X^{\circ}\text{C}$:发热区温度;半圆画实线为实测区温度,画虚线为推测区温度
8-36		水源孔 water source hole	
8-37		防水危险区警戒线 security line of flooding risk area	
8-38		井下水文观测点 underground hydrogeological observation point	l/s: liter/second; d: date; No: number
8-39		掘进工作面综合防尘标记 combined dust precaution marking for excavate face	601:掘进工作面号; R:岩煤性; IV:防尘措施项数; 39.2:粉尘 SiO_2 含量(%); 4.2:最大粉尘浓度(mg/m^3)
8-40		采煤工作面综合防尘标记 combined dust precaution marking for coal face	3161:采煤工作面号; M:开采方式为机采; IV:综合防尘措施项数; 3.7:煤层水分(%); 38:最大煤尘浓度(mg/m^3)
8-41		采空区 goaf	面积大时,只画范围内侧 10 mm~20 mm

表 8 (续)

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参 考 文 献

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- [2] GB/T 16660—2008 选煤厂用图形符号
- [3] GB/T 18024(所有部分) 煤矿机械技术文件用图形符号
- [4] GB/T 20000.2—2009 标准化工作指南 第2部分:采用国际标准
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- [12] BS 3618(all parts):Glossary of mining terms

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