INTERNATIONAL STANDARD

ISO 10628-2

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Diagrams for the chemical and petrochemical industry —

Part 2: Graphical symbols

Schémas de procédé pour l'industrie chimique et pétrochimique —

Partie 2: Symboles graphiques

Reference number
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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10628-2 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 10, *Process plant documentation*.

This first edition of ISO 10628-2, along with ISO 10628-1 (under preparation), cancels and replaces ISO 10628:1997, which has been technically revised.

ISO 10628 consists of the following parts, under the general title *Diagrams for the chemical and petrochemical industry*:

— *Part 2: Graphical symbols*

The following part is under preparation:

— *Part 1: Specification of diagrams*

Diagrams for the chemical and petrochemical industry —

Part 2:
Graphical symbols

1 Scope

This part of ISO 10628 defines graphical symbols for the preparation of diagrams for the chemical and petrochemical industry. It is a collective application standard of the ISO 14617 series.

This part of ISO 10628 does not apply to graphical symbols for electrotechnical diagrams; for these, see IEC 60617.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 14617 (all parts), *Graphical symbols for diagrams*

ISO 15519-1, *Specification for diagrams for process industry — Part 1: General rules*

ISO 81714 (all parts), *Design of graphical symbols for use in the technical documentation of products*

IEC 81714 (all parts), *Design of graphical symbols for use in the technical documentation of products*

3 Terms and definitions

For the purposes of this document, the definitions given in the ISO 14617 series and ISO 10209 apply.

4 Structure of graphical symbols

The graphical symbols are grouped according to functional and/or design features. See Table 1.

Table 1 — Subject groups

Group number	Subject group
1	Vessels and tanks
2	Columns with internals
3	Heat exchangers
4	Steam generators, furnaces, recooling device
5	Cooling tower
6	Filters, liquid filters, gas filters
7	Screening devices, sieves and rakes
8	Separators
9	Centrifuges
10	Drier

Table 1 *(continued)*

Group number	Subject group
11	Crushing/Grinding machines
12	Mixers/Kneaders
13	Shaping machines – processing in vertical direction
14	Shaping machines – processing in horizontal direction
15	Liquid pumps
16	Compressors, vacuum pumps
17	Blowers, fans
18	Lifting, conveying and transport equipment
19	Proportioners, feeders and distribution facilities
20	Engines
21	Valves
22	Check valves
23	Valves and fittings with safety function
24	Fittings
25	Graphical symbols for piping
26	Apparatus elements
27	Internals
28	Agitators, stirrers
29	Internal characteristics and built-in-components

5 Graphical symbols

Graphical symbols for diagrams used in chemical and petrochemical industry are presented in Table 2, which is is divided into four columns, as follows:

1 Item no. — Consecutive numbering within each subject group according to Table 1

2 Reg. no. — Registration numbers structured as follows:

- nnn — Registration number for ISO 14617 graphical symbols.
- Cnnnn — Preliminary registration number for a new graphical symbol, which will be implemented in ISO 14617. The preliminary registration number will be replaced with the final ISO 14617 registration number at first periodical review of ISO 10628-2.
- X2nnn — Registration number for ISO 14617 symbol examples.
- X8nnn — Registration number for ISO 10628-2 symbol examples.

3 Graphical symbol — Graphical symbols shown with a 2,5 mm dotted grid behind. Preferred locations of connections at graphical symbols are indicated by "—". This is not a part of the graphical symbol.

4 Description — The preferred descriptors for the graphical symbol.

Rules for modification of proportions and orientation of graphical symbols are given in ISO 81714 and IEC 81714.

If a graphical symbol is not accessible in ISO 10628-2, then ISO 14617 should be consulted for the needed graphical symbol.

If the needed graphical symbol is not available in ISO 14617, then the symbol shall be created by combining ISO 14617 symbols of basic nature with symbols given supplementary information according to rules given in ISO 14617, ISO 81714 and IEC 81714.

Table 2 — Graphical symbols for diagrams

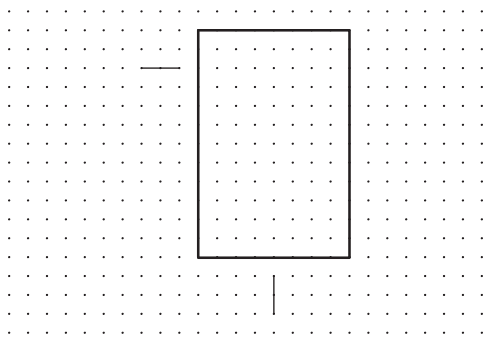
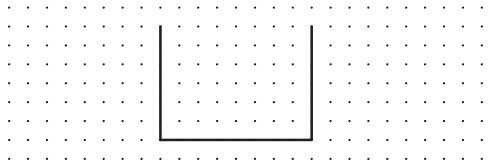
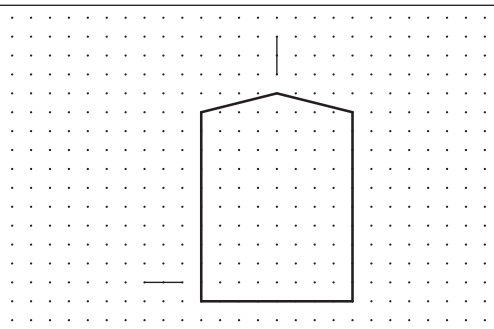
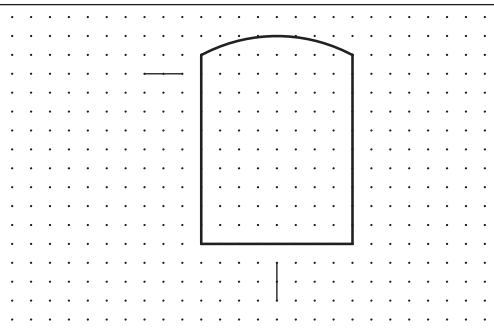
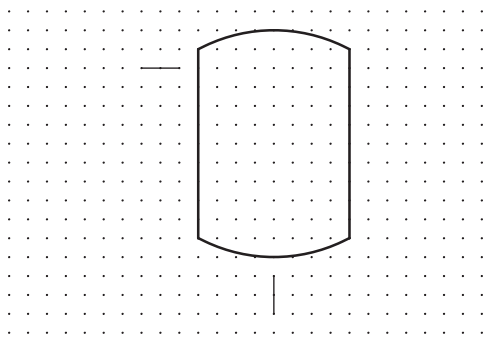
Item no.	Reg. no.	Graphical symbol	Description
1	**VESSELS AND TANKS**		
1.1	**301**		Tank, vessel
1.2	**2061**		Container, tank, cistern
1.3	**X2063**		Tank with conical roof and flat bottom
1.4	**X8200**		Tank with dished roof
1.5	**2062**		Tank, vessel with dished ends

Table 2 *(continued)*

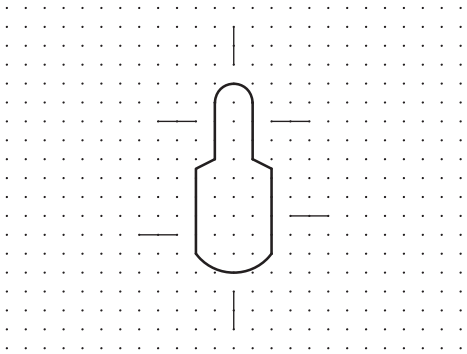
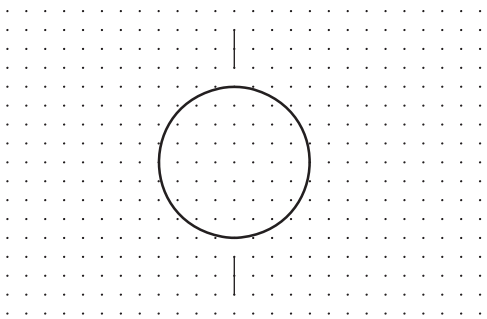
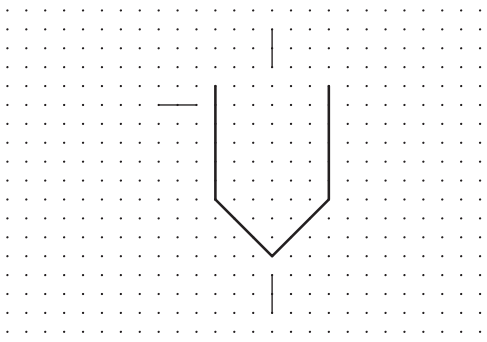
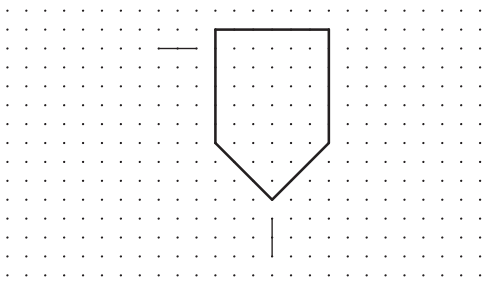
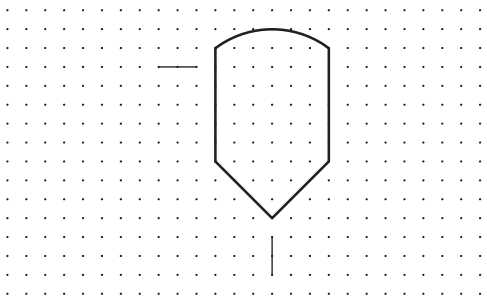
Item no.	Reg. no.	Graphical symbol	Description
1.6	**X8201**		Vessel with two different diameters
1.7	**2063**		Spherical vessel
1.8	**2064**		Bunker with conical bottom
1.9	**X2062**		Closed tank with conical bottom
1.10	**X8008**		Vessel with dished roof and conical bottom

Table 2 *(continued)*

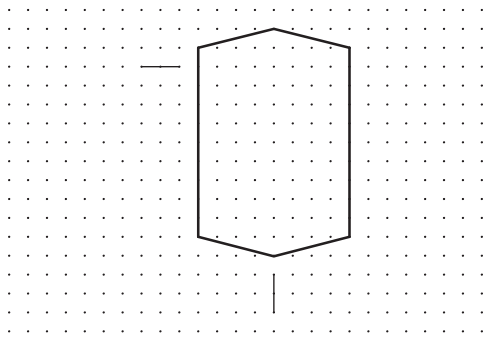
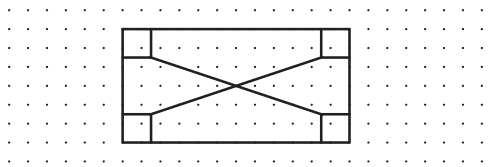
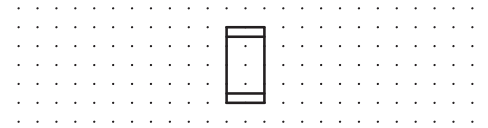
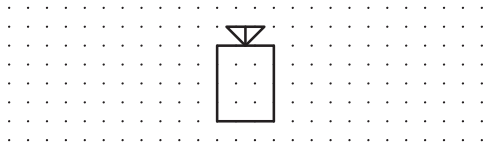
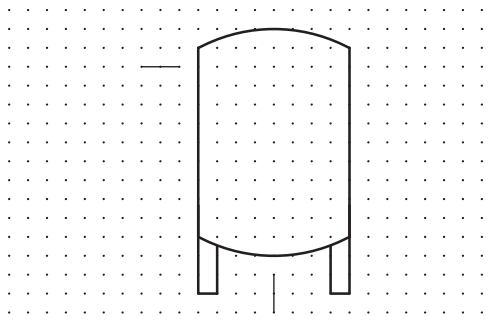
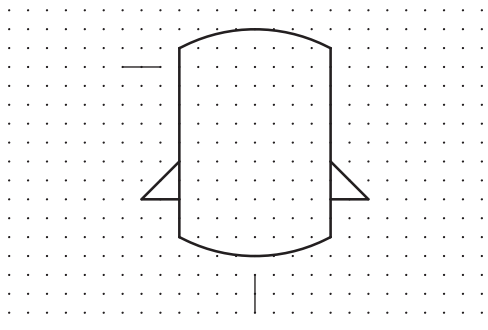
Item no.	Reg. no.	Graphical symbol	Description
1.11	**X8009**		Vessel with conical roof and bottom
1.12	**C0001**		Container for solids, liquids, gases
1.13	**2067**		Barrel, drum
1.14	**C0002**		Gas cylinder
1.15	**2068**		Bag
1.16	**X8002**		Vessel with dished ends and support legs
1.17	**X8003**		Vessel with dished ends and support brackets

Table 2 *(continued)*

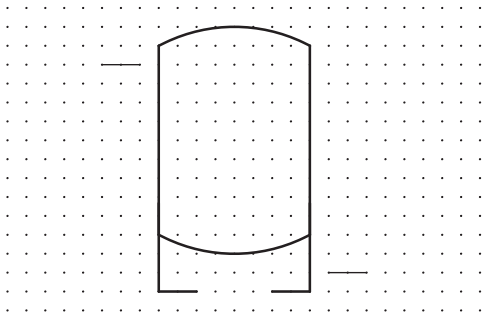
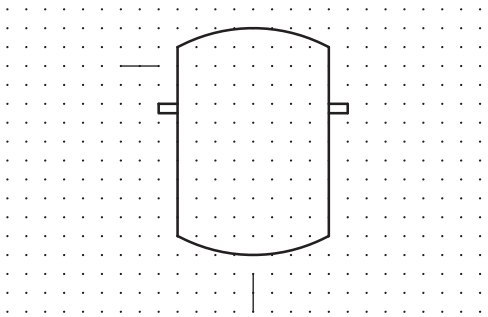
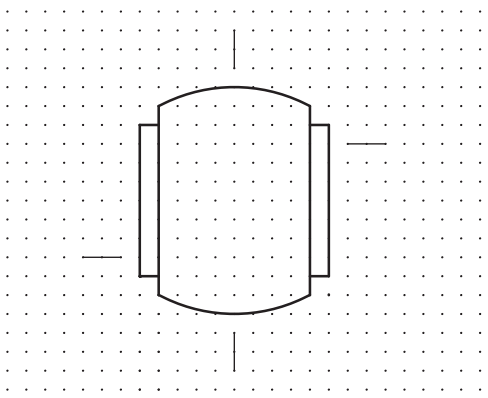
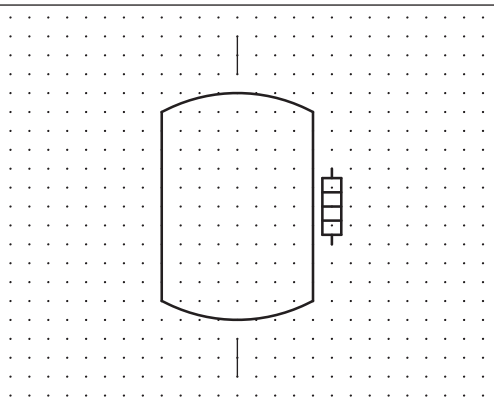
Item no.	Reg. no.	Graphical symbol	Description
1.18	**X8004**		Vessel with dished ends and support skirt
1.19	**X8005**		Vessel with dished ends and support ring
1.20	**X2069**		Vessel with dished ends and heating/ cooling jacket
1.21	**X2070**		Vessel with dished ends and electrical heating

Table 2 *(continued)*

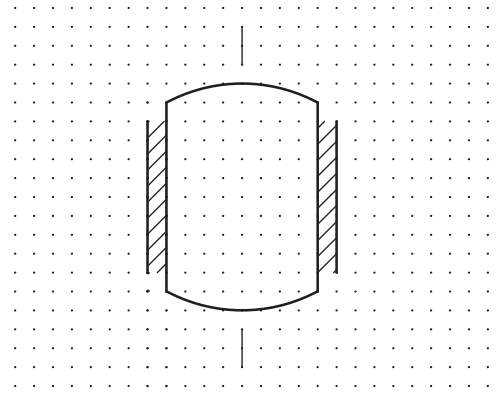
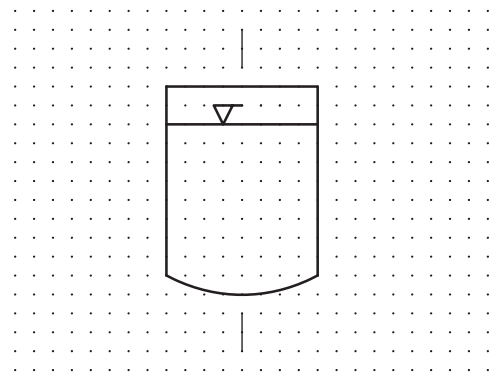
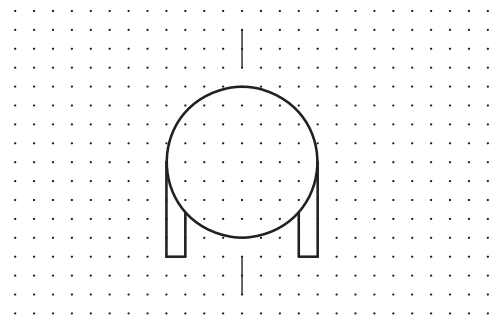
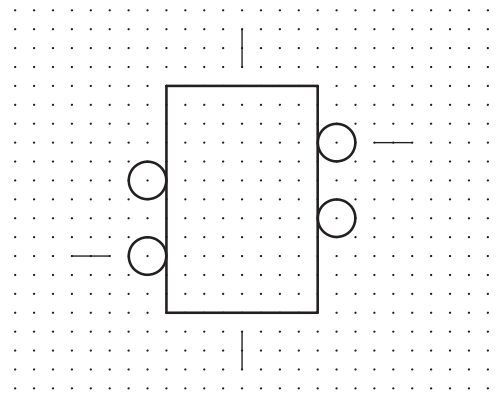
Item no.	Reg. no.	Graphical symbol	Description
1.22	**X8098**		Vessel with dished ends and thermal insulation
1.23	**X8007**		Vessel with dished bottom and surface indication
1.24	**X8010**		Spherical vessel on legs
1.25	**X8000**		Vessel with full-tube heating/cooling coil

Table 2 *(continued)*

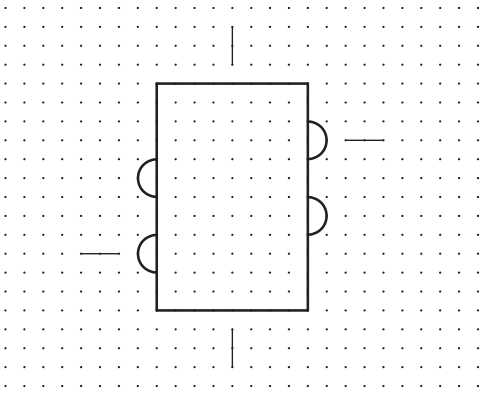
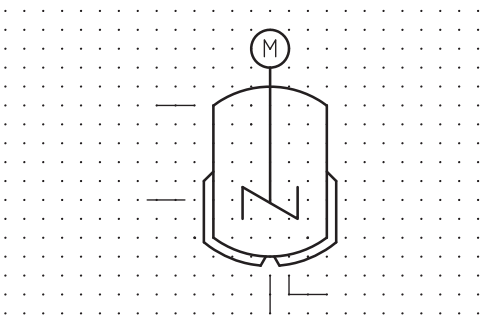
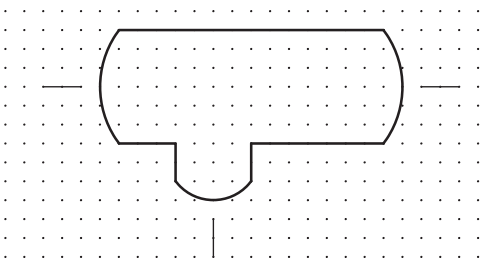
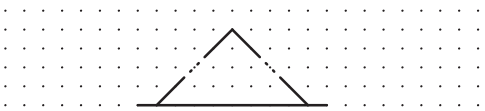
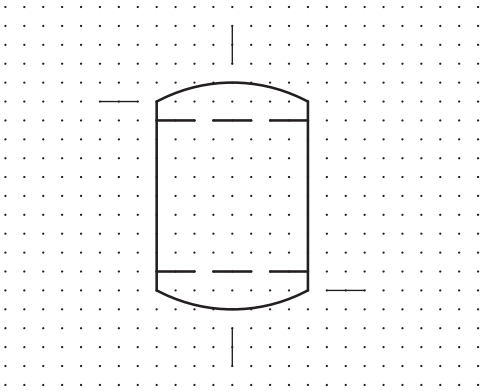
Item no.	Reg. no.	Graphical symbol	Description
1.26	**X8001**		Vessel with semi-tube heating/cooling coil
1.27	**X8006**		Jacketed vessel with dished ends and agitator driven by electric motor
1.28	**X8202**		Vessel with pit
1.29	**2065**		Open bulk storage
2	**COLUMNS WITH INTERNALS**		
2.1	**X8100**		Column (general)

Table 2 *(continued)*

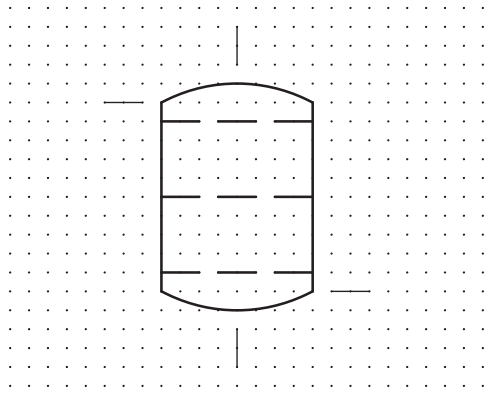
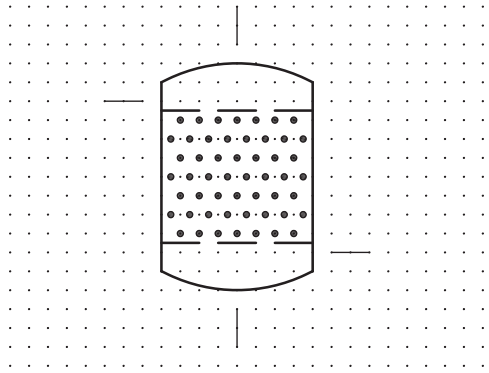
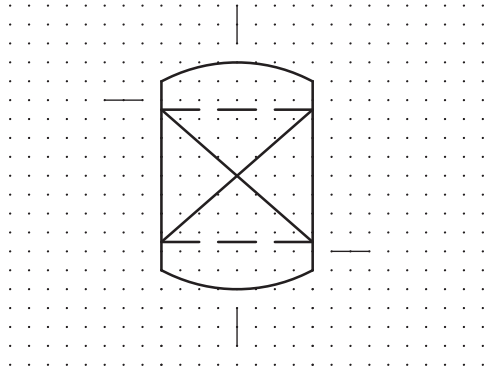
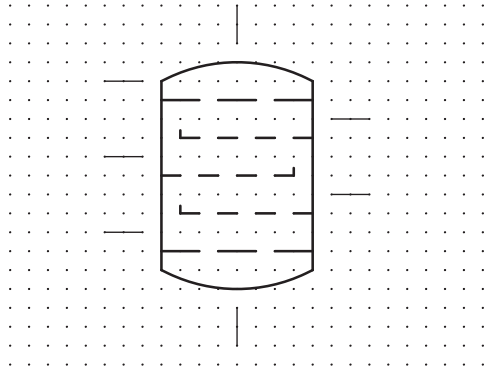
Item no.	Reg. no.	Graphical symbol	Description
2.2	**X8101**		Tray column (general)
2.3	**X8014**		Column with fluidized bed
2.4	**X8015**		Column with fixed bed
2.5	**X8013**		Column with staggered baffle trays

Table 2 *(continued)*

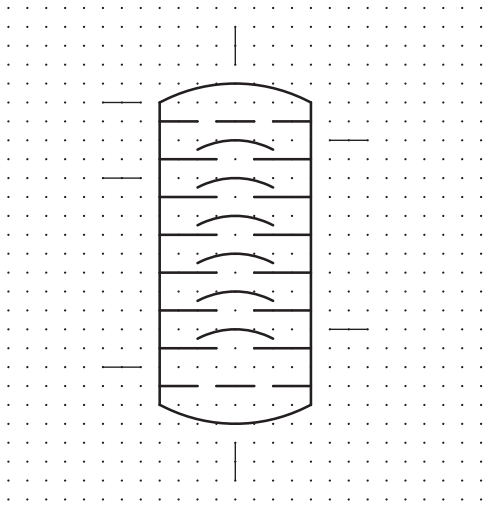
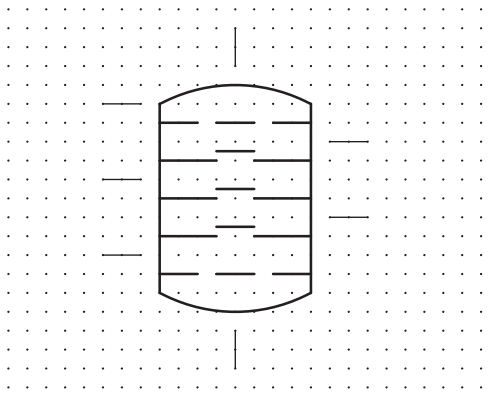
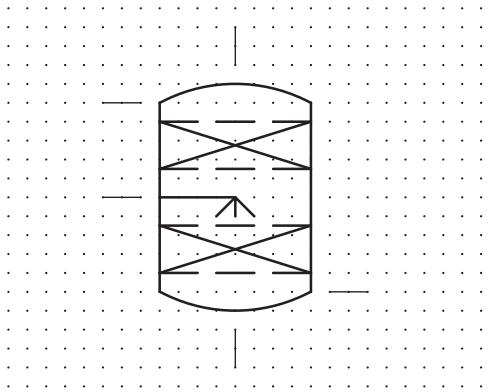
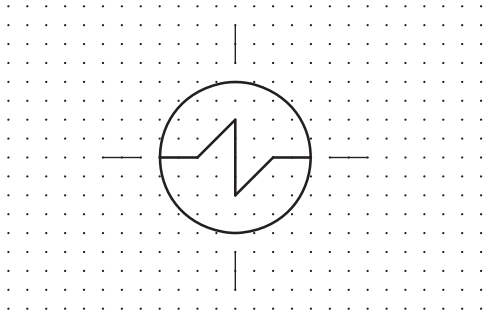
Item no.	Reg. no.	Graphical symbol	Description
2.6	**X8011**		Column with bubble cap trays
2.7	**X8012**		Column with valve trays
2.8	**X8016**		Column with two fixed bed sections and intermediate spray nozzle
3	**HEAT EXCHANGERS**		
3.1	**X8079**		Heat exchanger (general), condenser

Table 2 *(continued)*

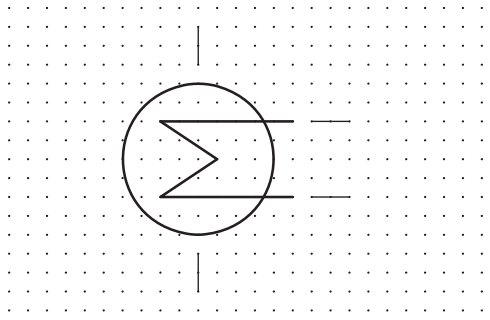
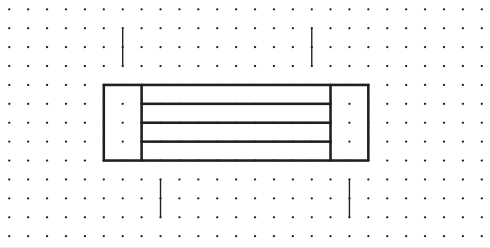
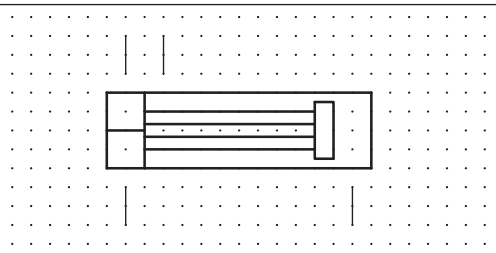
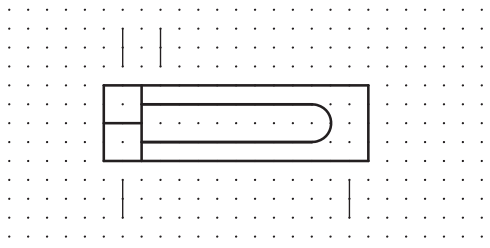
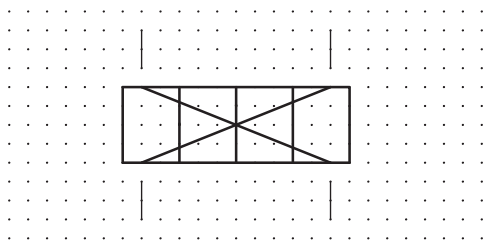
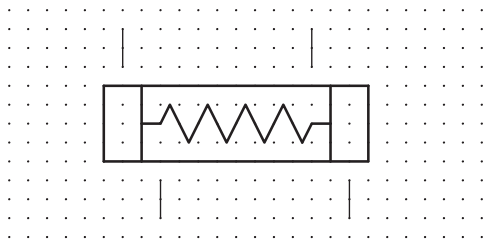
Item no.	Reg. no.	Graphical symbol	Description
3.2	**X8017**		Heat exchanger (M-shape)
3.3	**2511**		Heat exchanger with straight tubes (fixed-tube plates)
3.4	**2512**		Heat exchanger of floating head type
3.5	**2513**		Heat exchanger with U-shaped tubes
3.6	**2516**		Heat exchanger of plate type
3.7	**2514**		Heat exchanger with coil shaped tubes

Table 2 *(continued)*

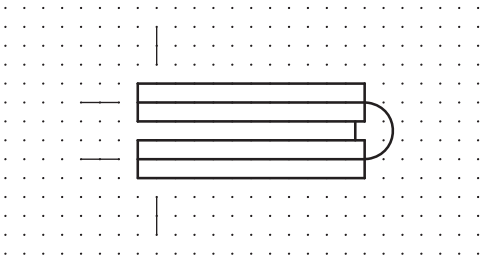
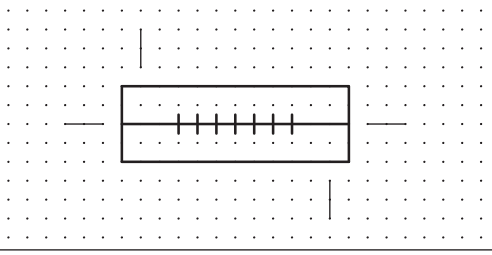
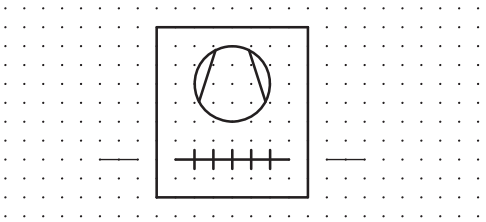
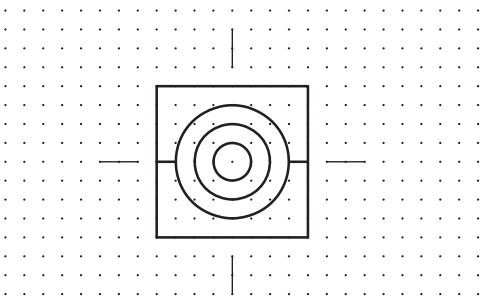
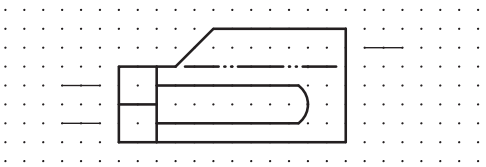
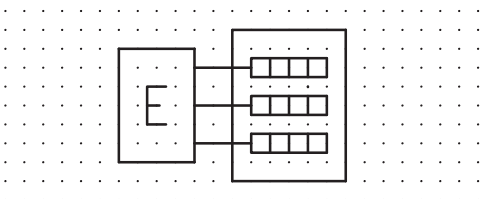
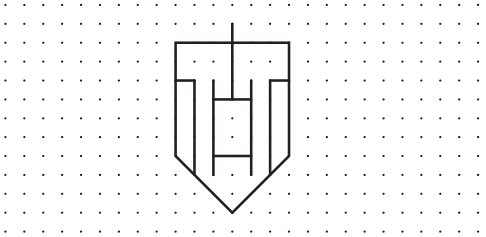
Item no.	Reg. no.	Graphical symbol	Description
3.8	**2515**		Heat exchanger of double-pipe type
3.9	**X8018**		Heat exchanger with finned tube
3.10	**X2505**		Heat exchanger with finned tube and fan
3.11	**2517**		Heat exchanger of spiral type
3.12	**X8131**		Evaporator, re-boiler
3.13	**X8132**		Electric heater
3.14	**X8133**		Thin-film evaporator

Table 2 *(continued)*

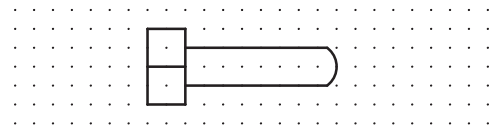
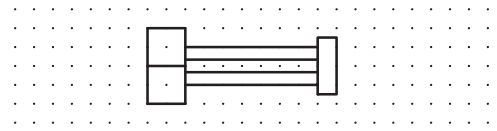
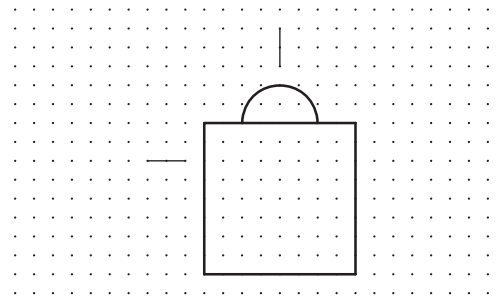
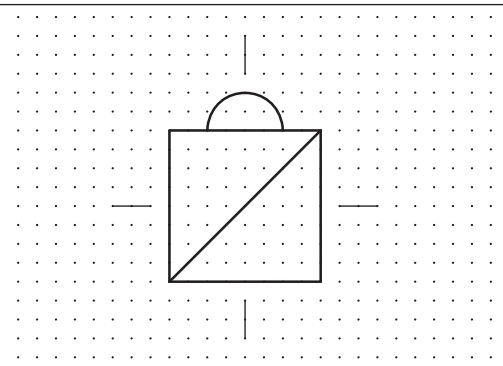
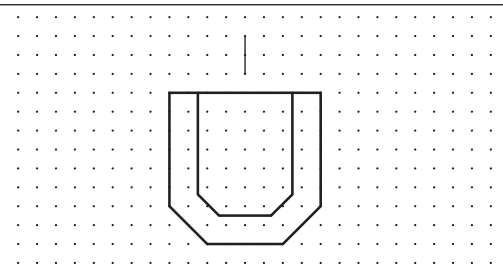
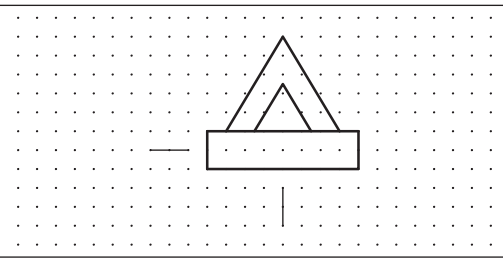
Item no.	Reg. no.	Graphical symbol	Description
3.15	**X8136**		Tube bundle, heat exchanger with U-shaped tubes
3.16	**X8137**		Tube bundle, heat exchanger of floating head type
4	**STEAM GENERATORS, FURNACES, RECOOLING DEVICE**		
4.1	**2532**		Boiler with dome
4.2	**X8103**		Steam generator with hot liquid as generating media
4.3	**2533**		Furnace
4.4	**X8107**		Firing system, burner (general)

Table 2 *(continued)*

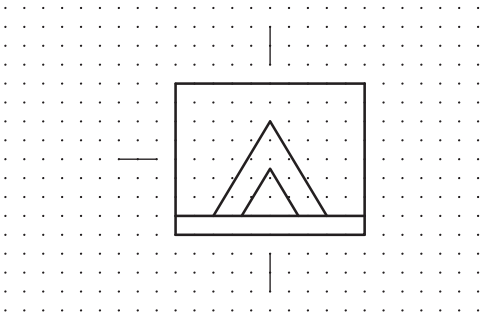
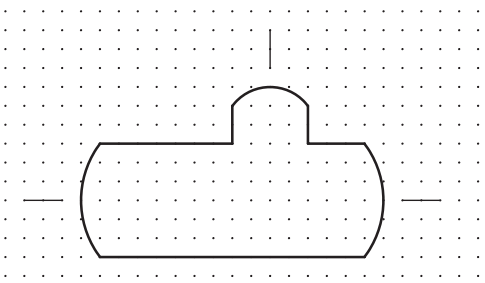
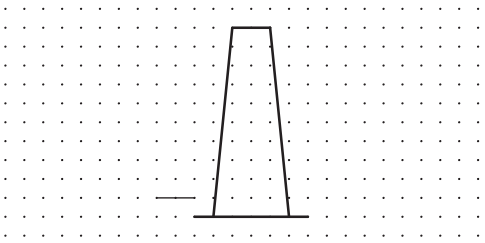
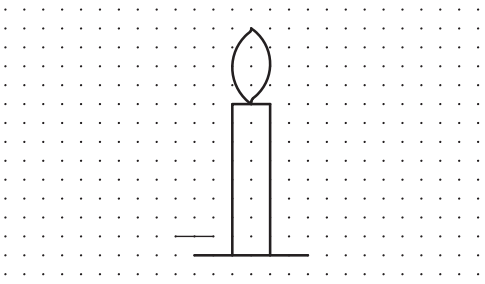
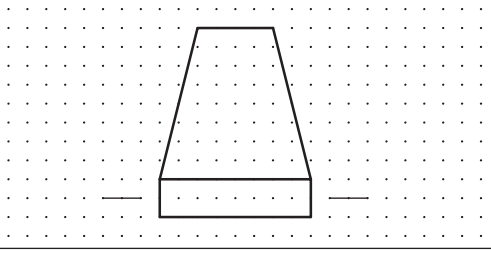
Item no.	Reg. no.	Graphical symbol	Description
4.5	**X8106**		Combustion chamber
4.6	**X8108**		Vessel with dome
4.7	**2041**		Stack, chimney
4.8	**2591**		Gas flare
5	**COOLING TOWER**		
5.1	**2521**		Cooling tower (general)

Table 2 *(continued)*

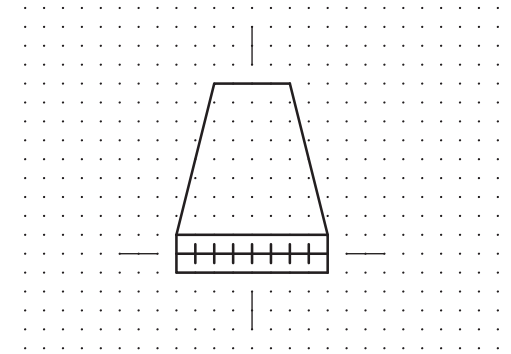
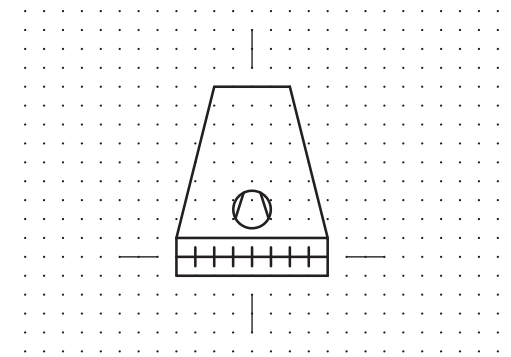
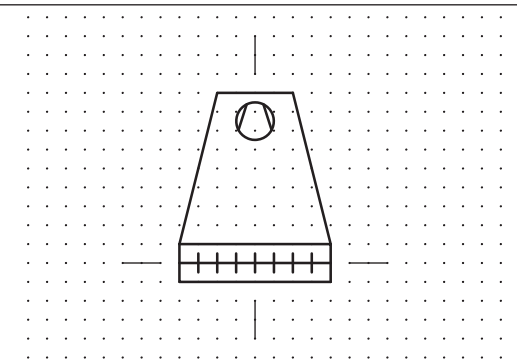
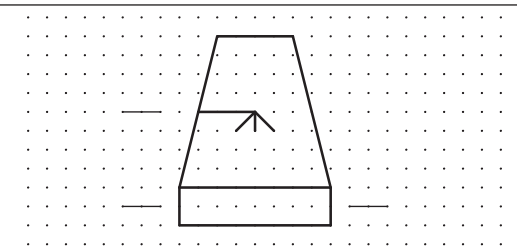
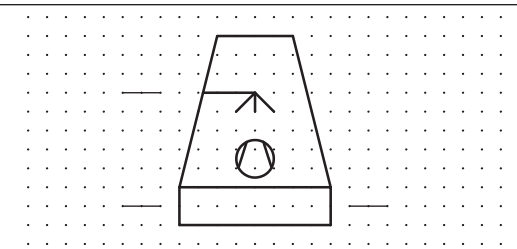
Item no.	Reg. no.	Graphical symbol	Description
5.2	**X8109**		Cooling tower, dry with natural draught
5.3	**X8110**		Cooling tower, dry with forced draught
5.4	**X8111**		Cooling tower, dry with induced draught
5.5	**X8112**		Cooling tower, wet with natural draught
5.6	**X8113**		Cooling tower, wet with forced draught

Table 2 *(continued)*

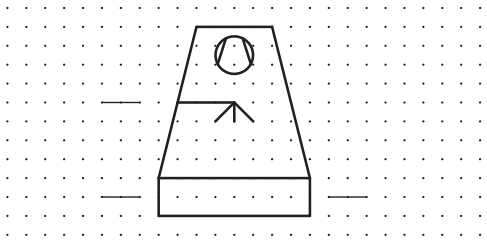
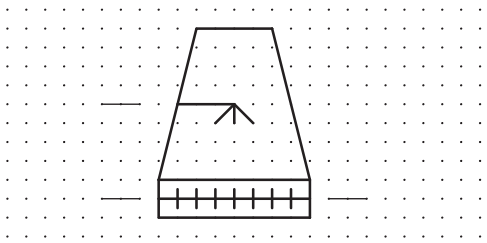
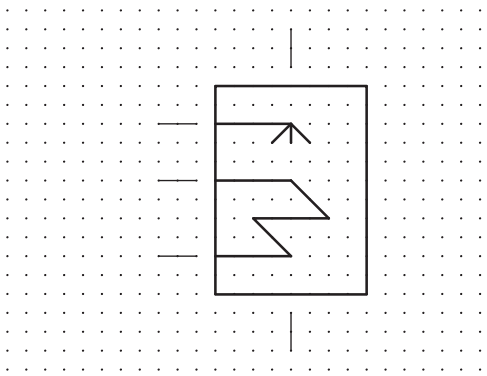
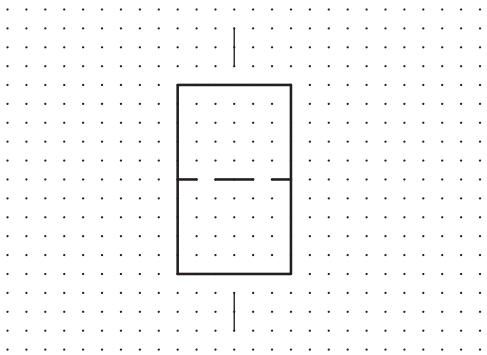
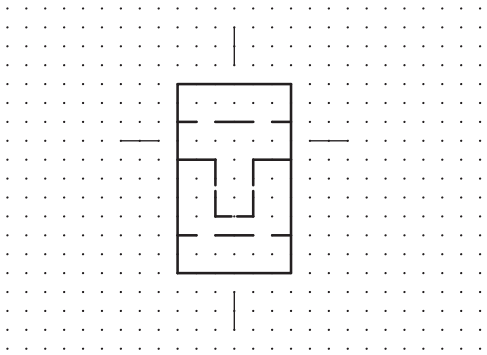
Item no.	Reg. no.	Graphical symbol	Description
5.7	**X8114**		Cooling tower, wet with induced draught
5.8	**X8115**		Cooling tower, wet–dry with natural draught
5.9	**X2504**		Spray cooler
6	**FILTERS, LIQUID FILTERS, GAS FILTERS**		
6.1	**X8116**		Liquid filter (general)
6.2	**X8117**		Liquid filter, bag, candle or cartridge type

Table 2 *(continued)*

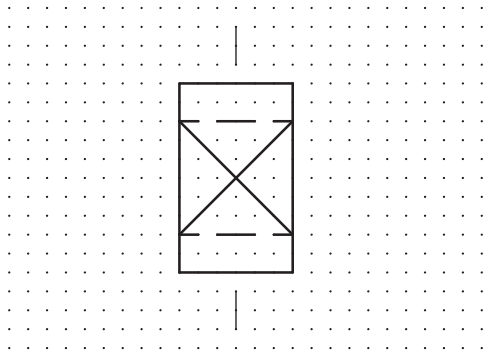
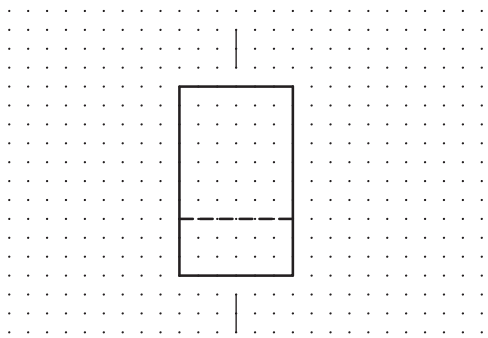
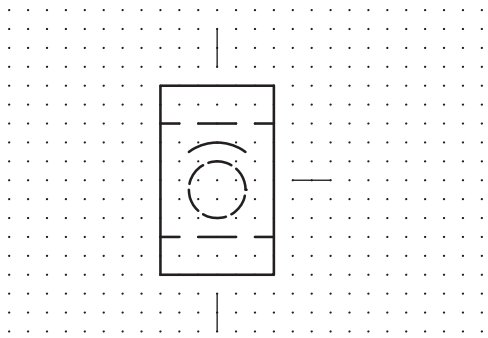
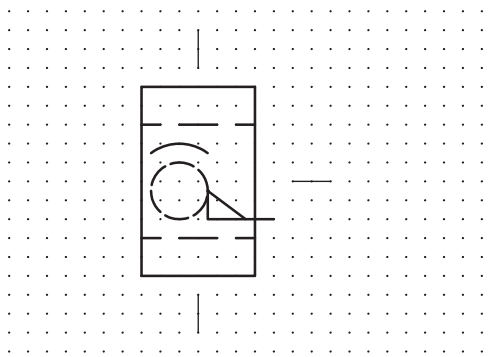
Item no.	Reg. no.	Graphical symbol	Description
6.3	**X8118**		Liquid bed filter fixed type
6.4	**X8019**		Suction filter
6.5	**X8119**		Liquid rotary filter, drum or disc type
6.6	**X8120**		Liquid rotary filter, drum or disc type with scraper

Table 2 *(continued)*

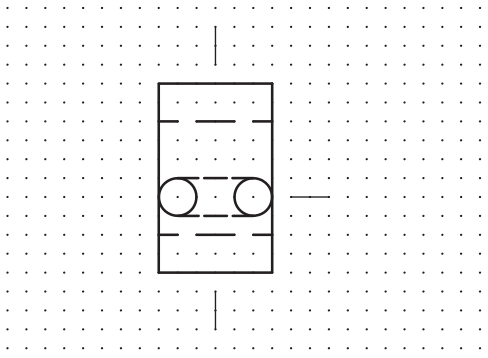
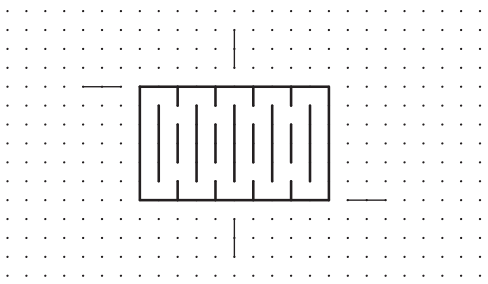
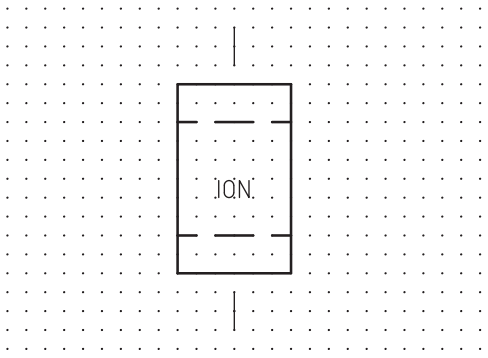
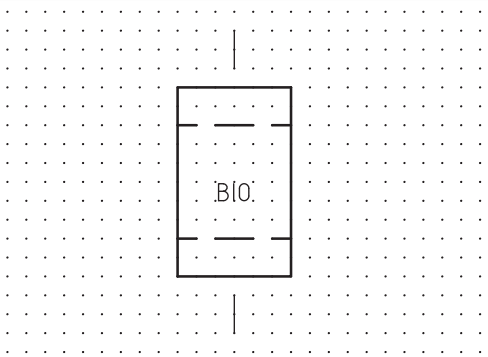
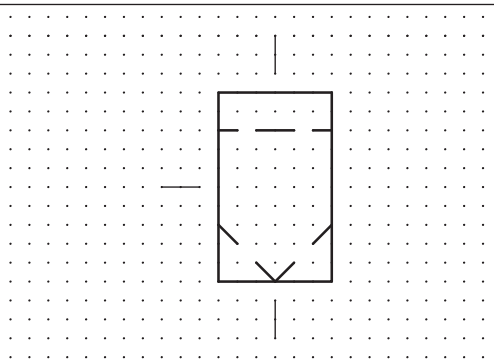
Item no.	Reg. no.	Graphical symbol	Description
6.7	**X8121**		Liquid filter, belt or roll type
6.8	**X2611**		Filter press, press filter
6.9	**X8020**		Liquid bed filter, ion exchanger type
6.10	**X8021**		Liquid bed filter, biological type
6.11	**X8122**		Gas filter (general)

Table 2 *(continued)*

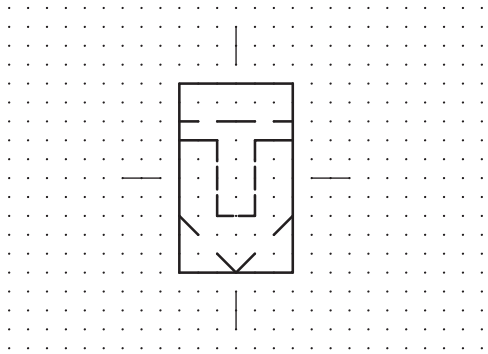
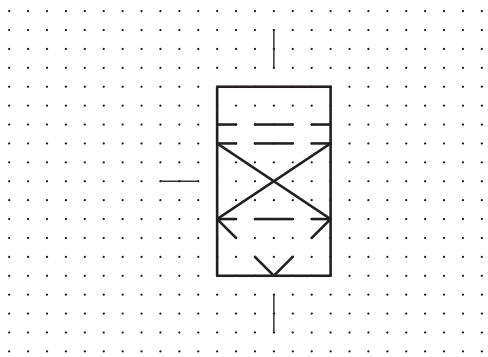
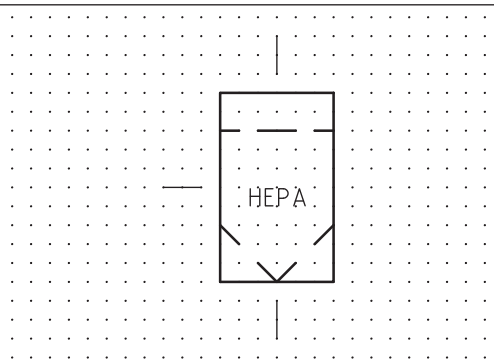
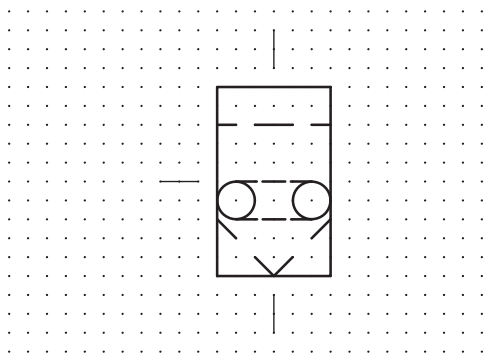
Item no.	Reg. no.	Graphical symbol	Description
6.12	**X8022**		Gas filter, bag, candle or cartridge type
6.13	**X8023**		Gas bed filter fixed type
6.14	**X8024**		Gas filter, high efficiency particulate air filter HEPA type
6.15	**X8025**		Gas filter, belt or roll type

Table 2 *(continued)*

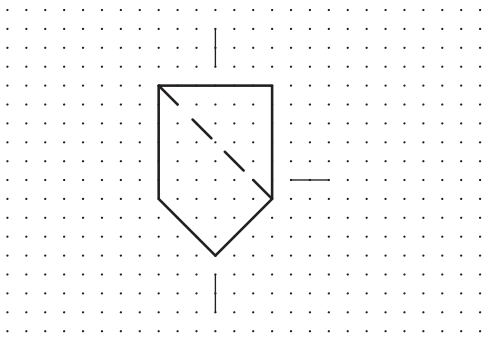
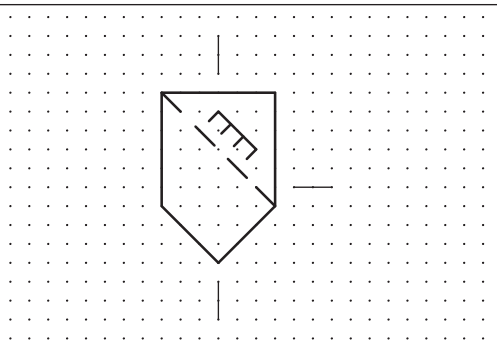
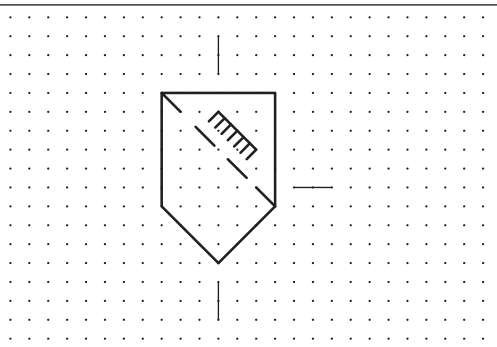
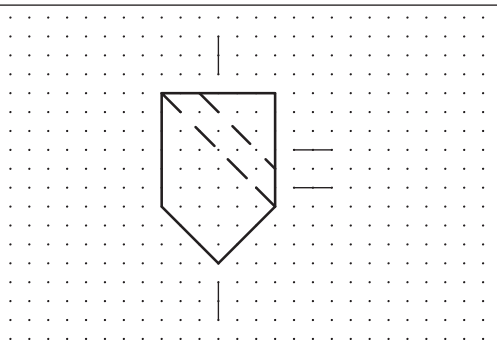
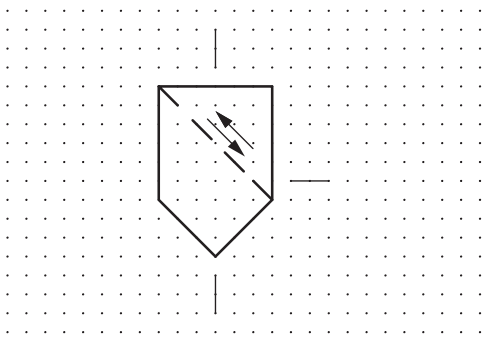
Item no.	Reg. no.	Graphical symbol	Description
7	**SCREENING DEVICES, SIEVES AND RAKES**		
7.1	**X8123**		Screening device, sieve, strainer, general
7.2	**X8026**		Screening device, coarse rake type
7.3	**X8027**		Screening device, fine rake type
7.4	**X8028**		Screening device with coarse and fine screens
7.5	**X2605**		Screening device, sieve, strainer, vibrating type

Table 2 *(continued)*

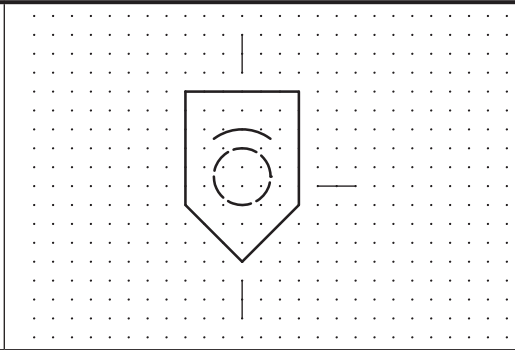
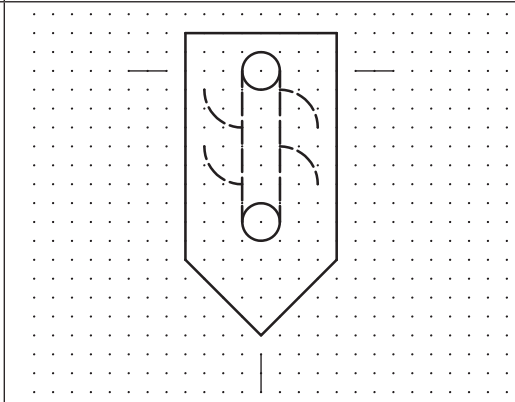
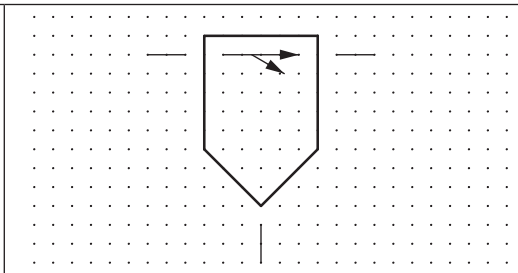
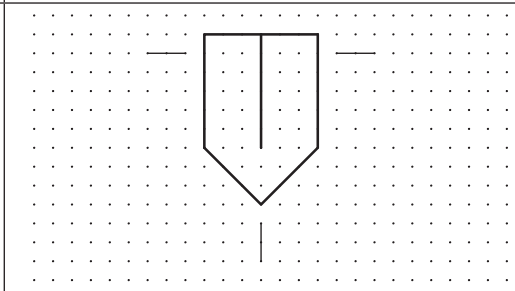
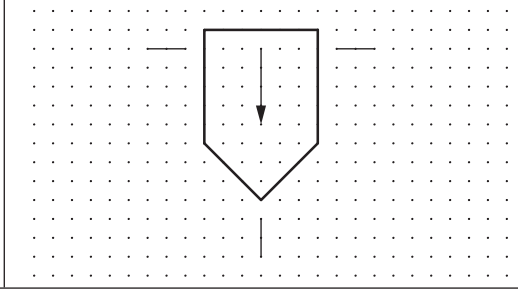
Item no.	Reg. no.	Graphical symbol	Description
7.6	**X8029**		Screening device, rotating drum type
7.7	**X8030**		Screening device, basket reel type
8	**SEPARATORS**		
8.1	**X8081**		Separator, sifter (general)
8.2	**X2616**		Impact separator
8.3	**X8031**		Gravity separator, settling chamber

Table 2 *(continued)*

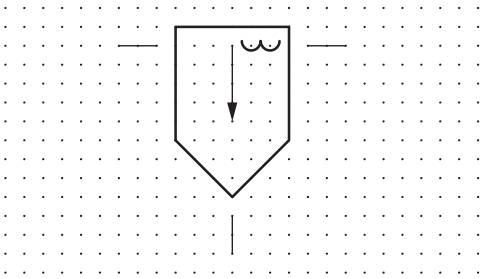
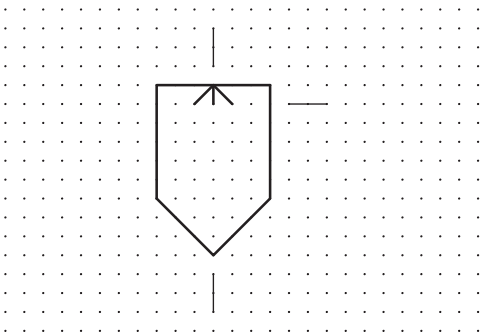
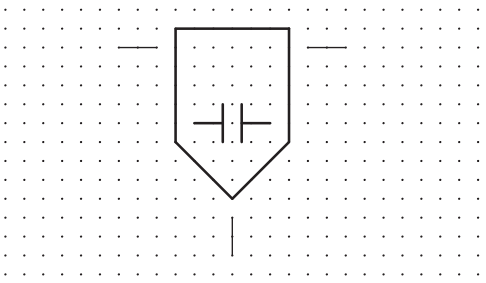
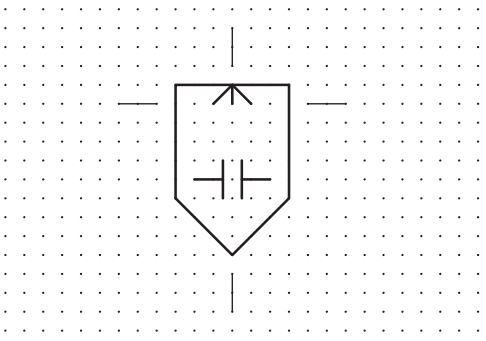
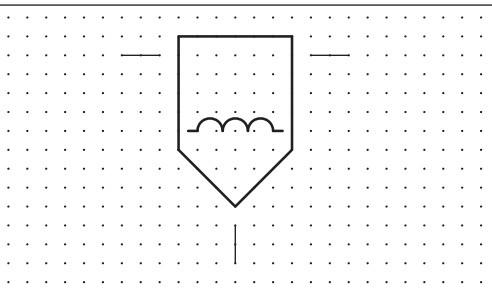
Item no.	Reg. no.	Graphical symbol	Description
8.4	**X8124**		Separator, scrubber wet type
8.5	**X2621**		Spray scrubber
8.6	**X8125**		Separator, precipitator electrostatic type
8.7	**X8033**		Precipitator wet, electrostatic type
8.8	**X8126**		Electromagnetic separator

Table 2 *(continued)*

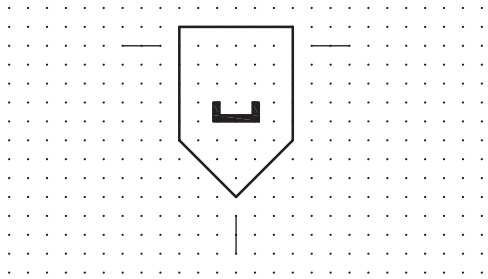
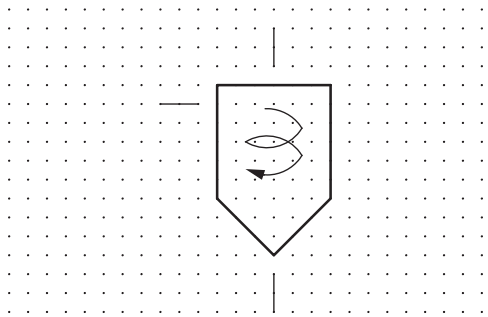
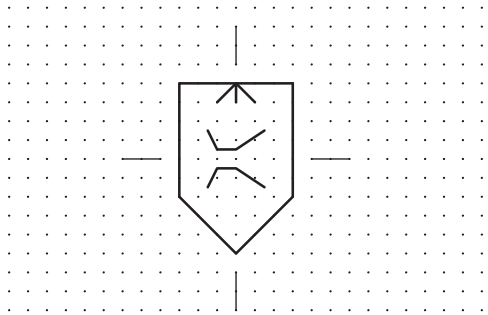
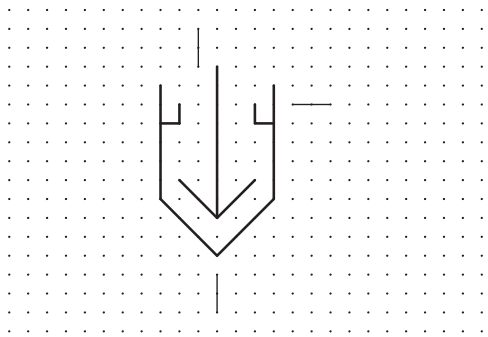
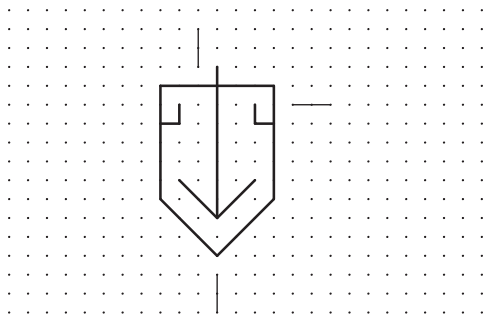
Item no.	Reg. no.	Graphical symbol	Description
8.9	**X8127**		Permanent magnet separator
8.10	**X2618**		Separator, cyclone type
8.11	**X8034**		Separator, scrubber venturi type
8.12	**X8128**		Solidifier for waste water treatment plant open type
8.13	**X8129**		Solidifier closed type

Table 2 *(continued)*

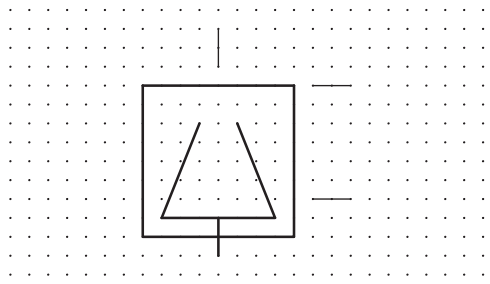
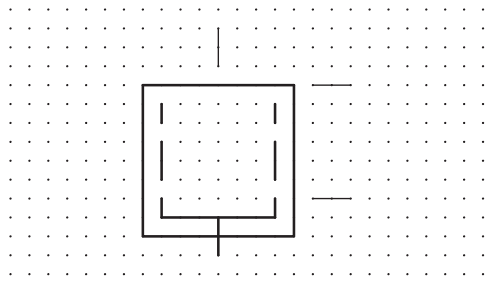
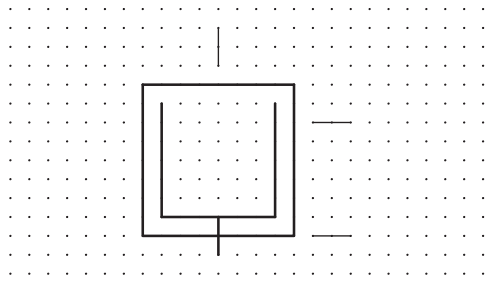
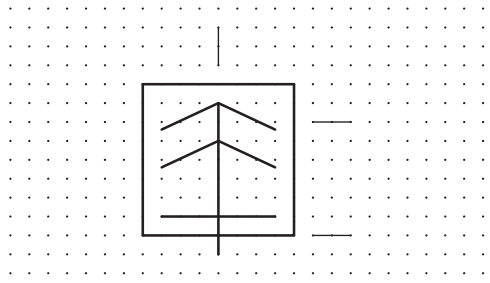
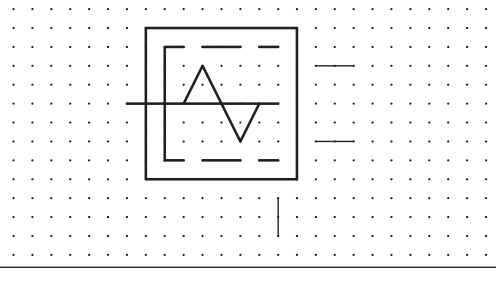
Item no.	Reg. no.	Graphical symbol	Description
9	**CENTRIFUGES**		
9.1	**X2619**		High speed centrifuge
9.2	**X2614**		Centrifuge with perforated shell
9.3	**X8035**		Centrifuge with solid shell
9.4	**X8036**		Centrifuge, separator disc-type
9.5	**X8037**		Centrifuge, screw-type with perforated shell

Table 2 *(continued)*

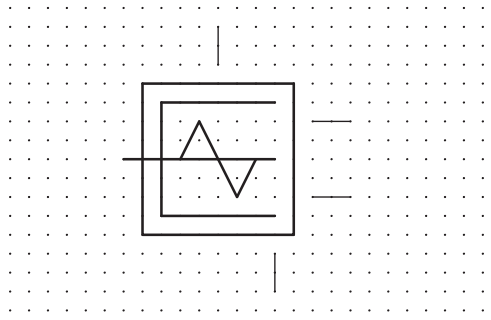
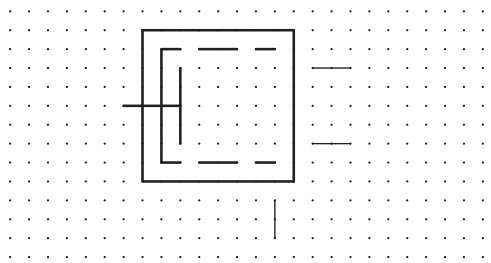
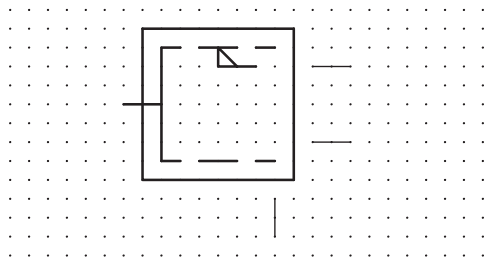
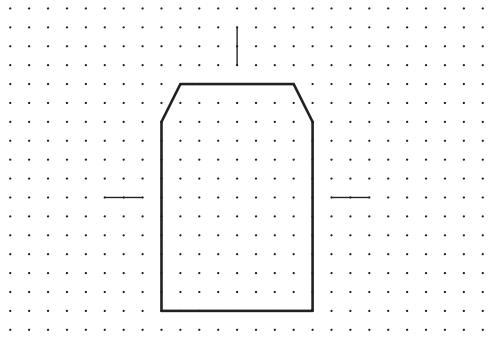
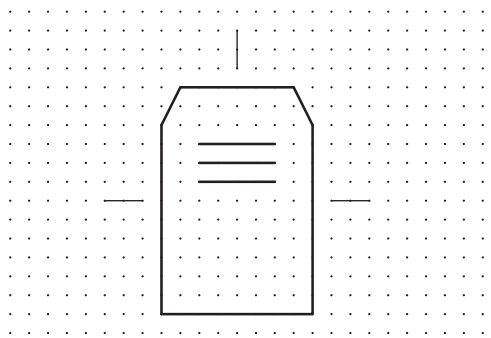
Item no.	Reg. no.	Graphical symbol	Description
9.6	**X8082**		Decanter, centrifuge, screw type with solid shell
9.7	**X8038**		Centrifuge, pusher type
9.8	**X8039**		Centrifuge, skimmer type
10	**DRIER**		
10.1	**C0046**		Drier (general)
10.2	**X8083**		Drying oven, drying chamber, shelf drier

Table 2 *(continued)*

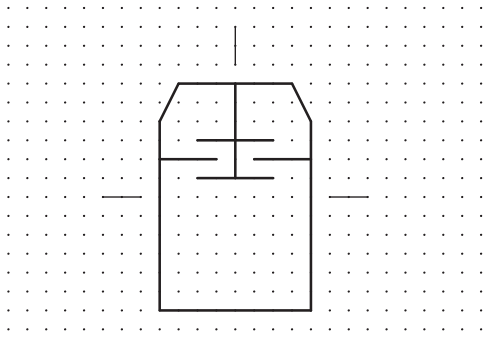
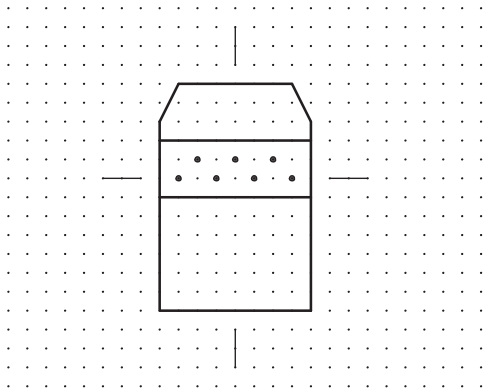
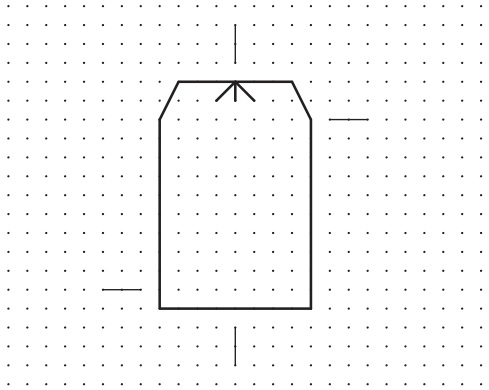
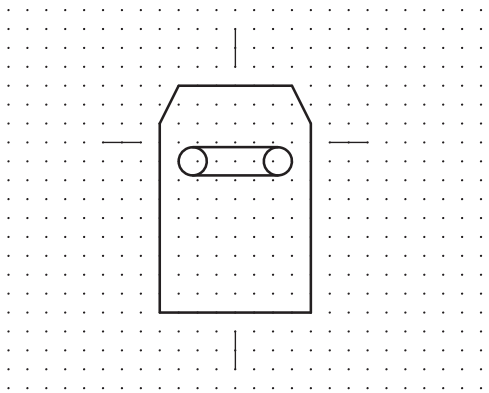
Item no.	Reg. no.	Graphical symbol	Description
10.3	**X8040**		Turbo drier, disc drier, moving shelf drier
10.4	**X8041**		Fluidized bed drier
10.5	**X8042**		Spray drier
10.6	**X8043**		Belt drier, roller-conveyor type drier

Table 2 *(continued)*

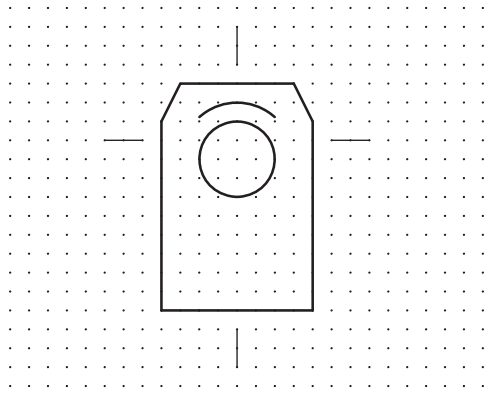
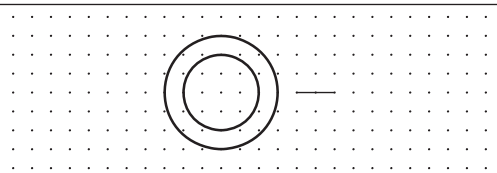
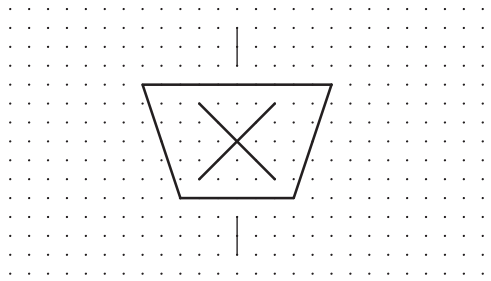
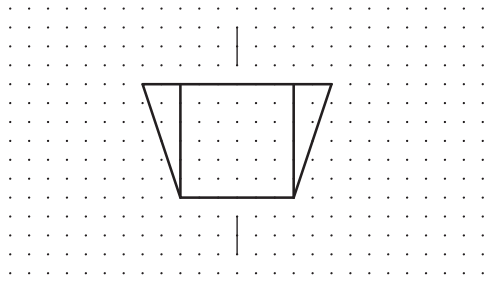
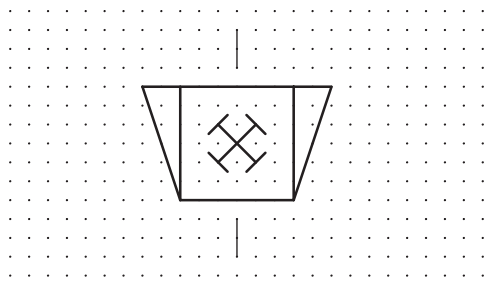
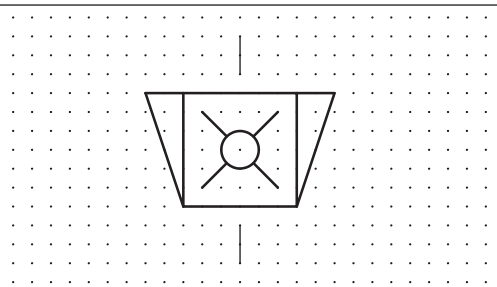
Item no.	Reg. no.	Graphical symbol	Description
10.7	**X8044**		Rotary drum drier, rotary drier, tumbling drier
10.8	**C0016**		Heat consumer
11	**CRUSHING/GRINDING MACHINES**		
11.1	**X8084**		Crushing/grinding machine (general)
11.2	**X8085**		Crusher (general)
11.3	**X8045**		Crusher, hammer type
11.4	**X8046**		Crusher, impact type

Table 2 *(continued)*

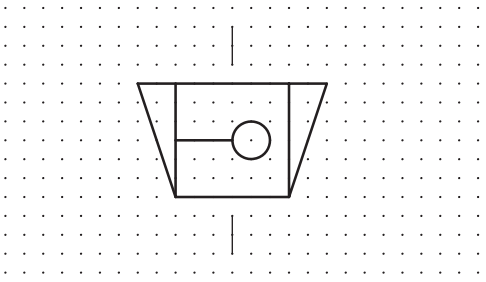
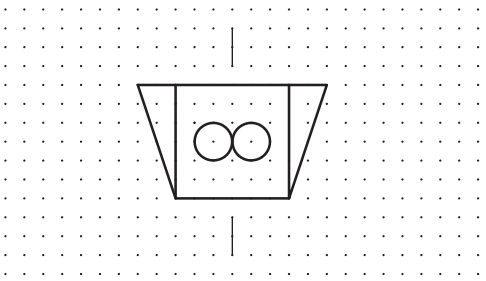
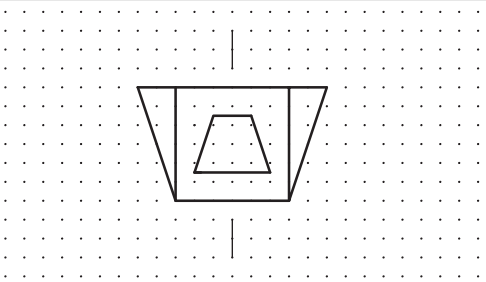
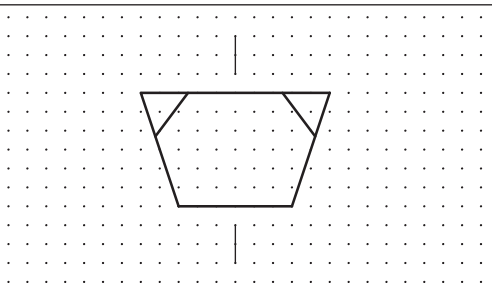
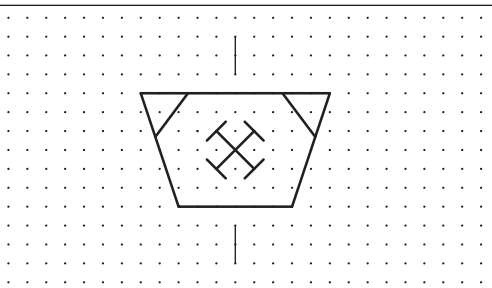
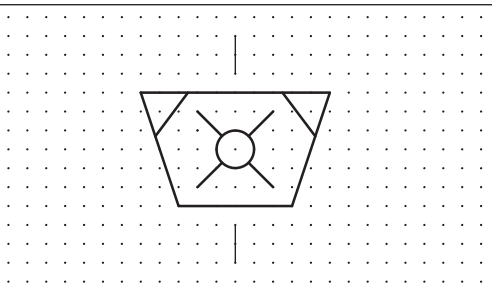
Item no.	Reg. no.	Graphical symbol	Description
11.5	**X8047**		Crusher, jaw type
11.6	**X8048**		Crusher, roller type
11.7	**X8049**		Crusher, cone type
11.8	**X8086**		Mill, pulverizer (general)
11.9	**X8050**		Mill, pulverizer hammer type
11.10	**X8051**		Mill, impact type

Table 2 *(continued)*

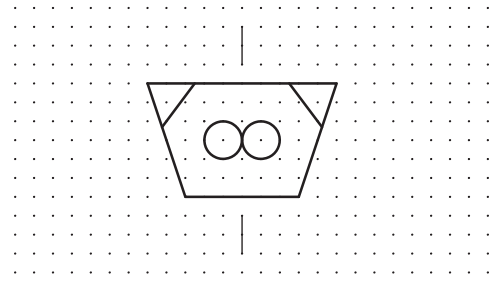
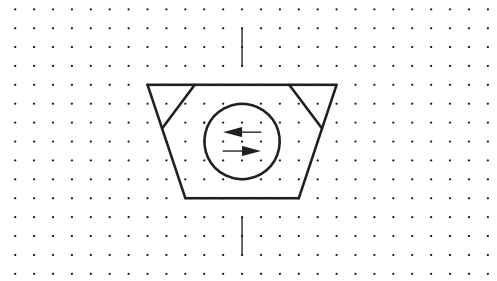
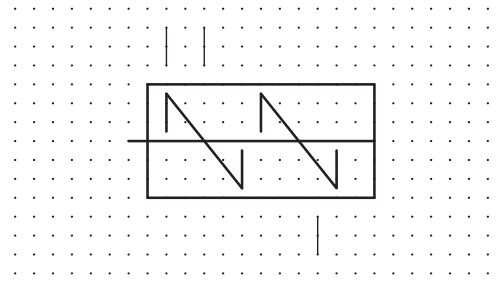
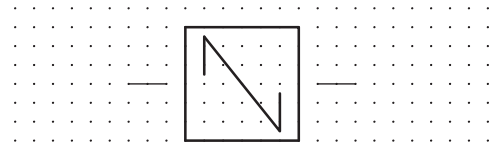
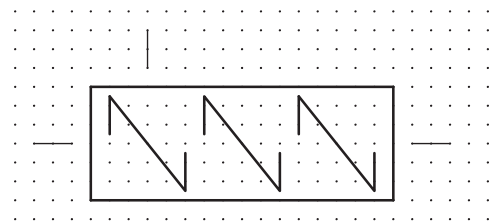
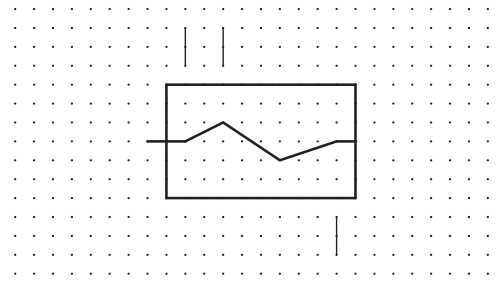
Item no.	Reg. no.	Graphical symbol	Description
11.11	**X8053**		Mill, horizontal rotation roller type
11.12	**X8054**		Mill, vibration type
12	**MIXERS/KNEADERS**		
12.1	**X2672**		In-line rotary mixer
12.2	**X2673**		In-line static mixer
12.3	**X8184**		Mixing path
12.4	**X8134**		Kneader

Table 2 *(continued)*

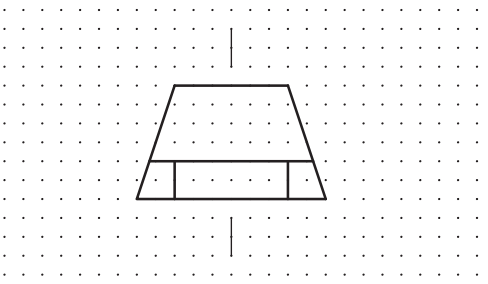
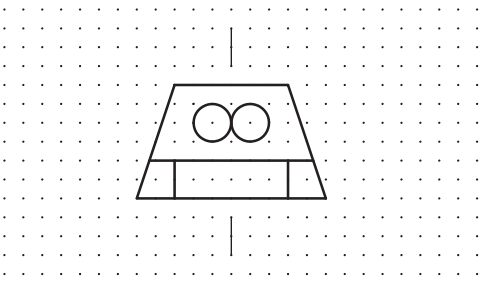
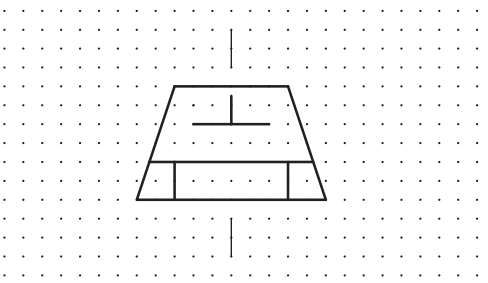
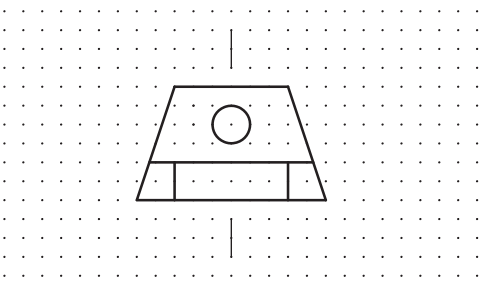
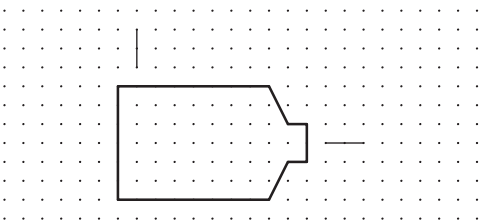
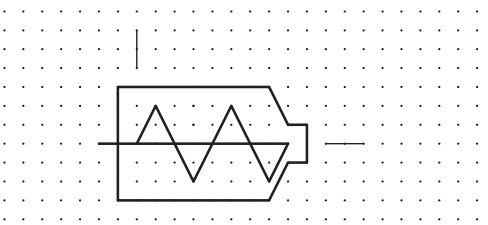
Item no.	Reg. no.	Graphical symbol	Description
13	**SHAPING MACHINES — PROCESSING IN VERTICAL DIRECTION**		
13.1	**C0052**		Shaping machine, vertical type (general)
13.2	**X8055**		Press, roller type
13.3	**X8056**		Press, piston type
13.4	**X8057**		Pelletizing disc
14	**SHAPING MACHINES — PROCESSING IN HORIZONTAL DIRECTION**		
14.1	**C0053**		Shaping machine, horizontal type (general)
14.2	**X8058**		Extruder, screw type

Table 2 *(continued)*

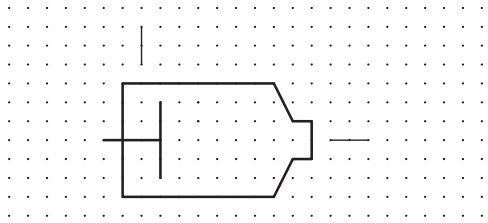
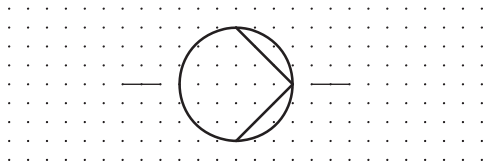
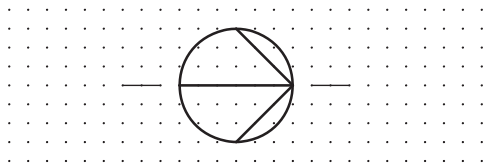
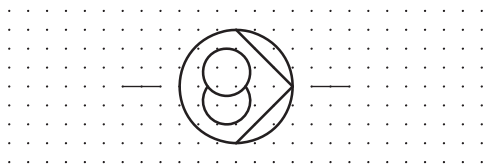
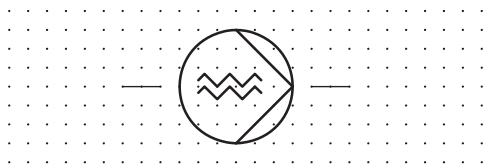
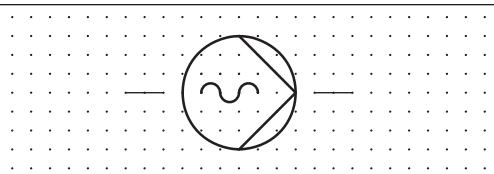
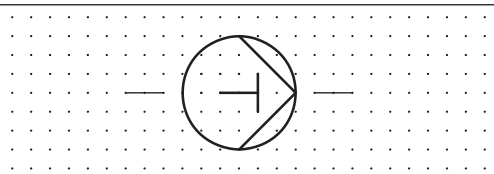
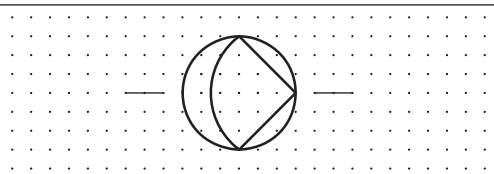
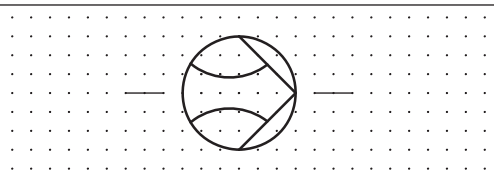
Item no.	Reg. no.	Graphical symbol	Description
14.3	**X8059**		Extruder, piston type
15	**LIQUID PUMPS**		
15.1	**2301**		Pump, liquid type (general)
15.2	**2322**		Pump, centrifugal type
15.3	**X8091**		Pump, gear type
15.4	**X8092**		Pump, screw type
15.5	**X8093**		Pump, progressive cavity type
15.6	**X8094**		Pump, reciprocating piston type
15.7	**X8095**		Pump, diaphragm type
15.8	**X8096**		Jet pump, liquid type ejector pump

Table 2 *(continued)*

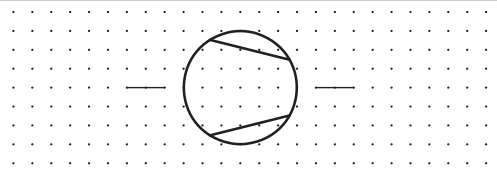
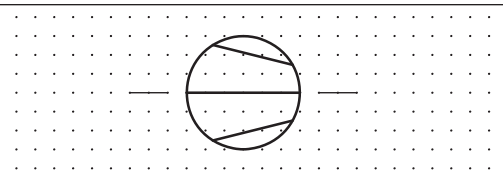
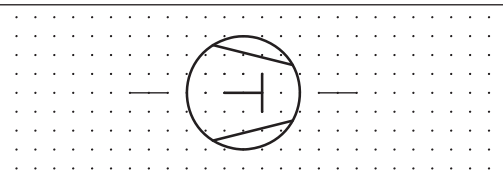
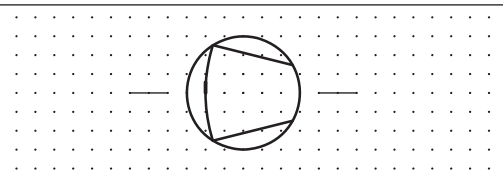
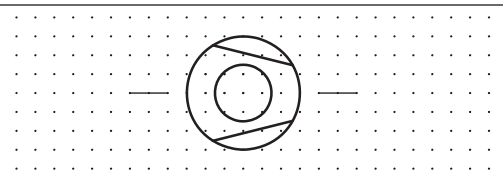
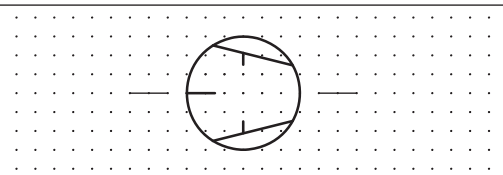
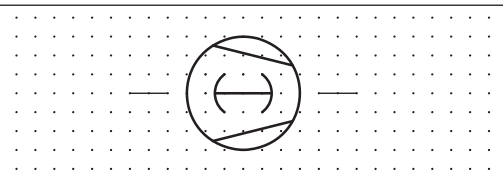
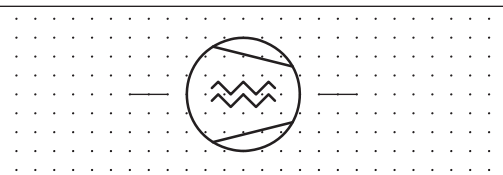
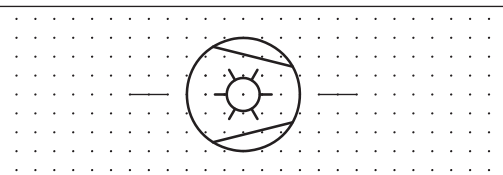
Item no.	Reg. no.	Graphical symbol	Description
16	**COMPRESSORS, VACUUM PUMPS**		
16.1	**2302**		Compressor, vacuum pump (general)
16.2	**X8179**		Compressor, centrifugal type
16.3	**X8097**		Compressor, vacuum pump, reciprocating piston type
16.4	**X8099**		Compressor, vacuum pump diaphragm type
16.5	**X8102**		Compressor, vacuum pump, turbo type
16.6	**X8104**		Compressor, vacuum pump, roller vane type, compressor
16.7	**X8105**		Compressor rotary type, vacuum pump, rotary piston type
16.8	**X8161**		Compressor, screw type
16.9	**X8162**		Compressor, vacuum pump liquid ring type

Table 2 *(continued)*

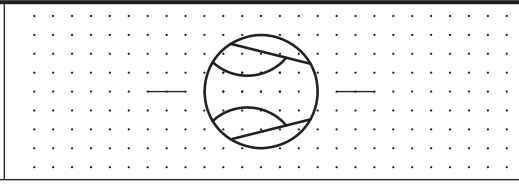
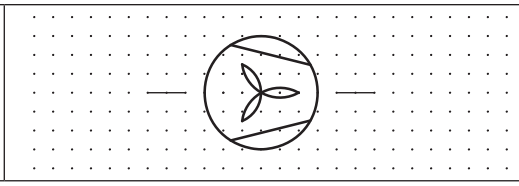
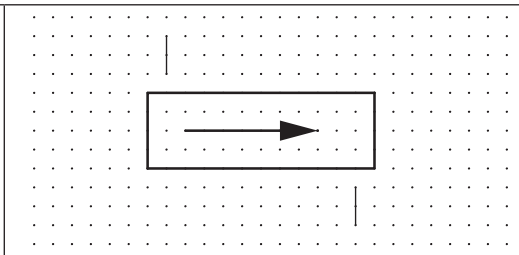
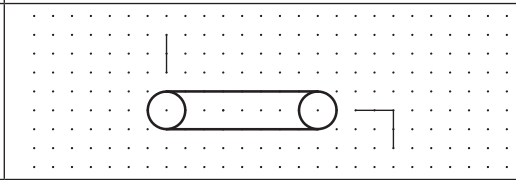
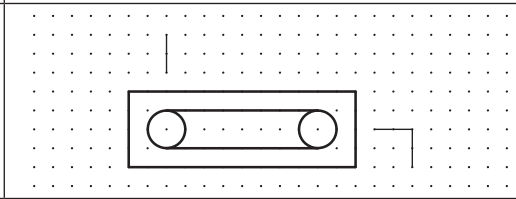
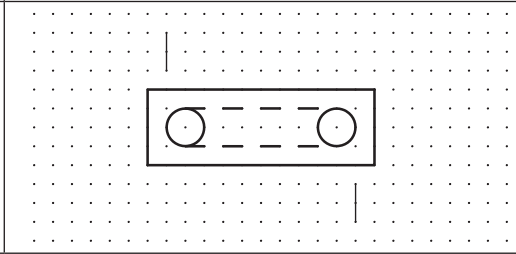
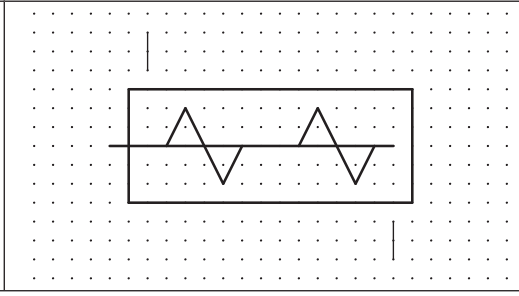
Item no.	Reg. no.	Graphical symbol	Description
16.10	**X8163**		Compressor, ejector type, vacuum pump jet type
17	**BLOWERS, FANS**		
17.1	**X8164**		Blower, fan (general)
18	**LIFTING, CONVEYING AND TRANSPORT EQUIPMENT**		
18.1	**X8060**		Conveyor (general)
18.2	**3821**		Conveyor, belt type
18.3	**X8061**		Conveyor, belt type in box
18.4	**X8062**		Conveyor, chain type, closed
18.5	**X8063**		Conveyor, screw type, closed

Table 2 *(continued)*

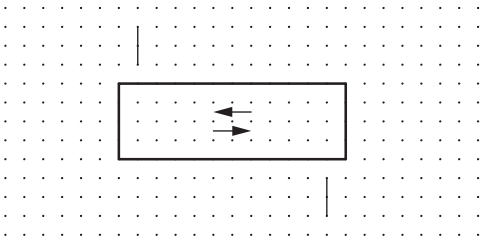
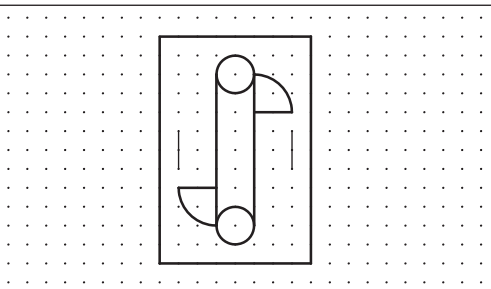
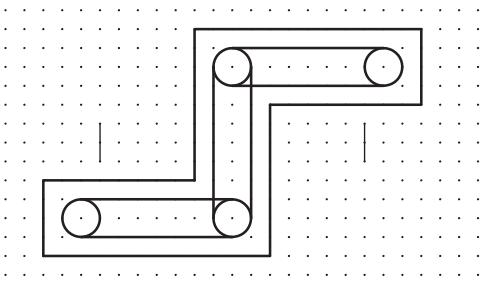
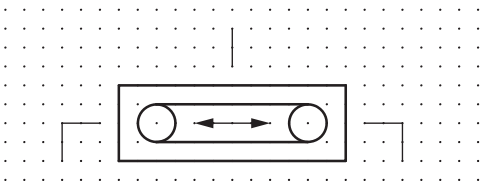
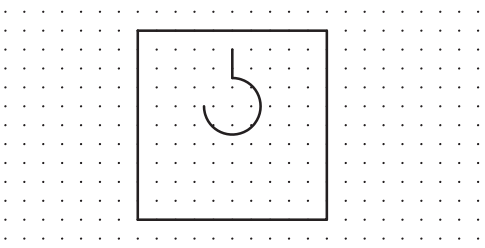
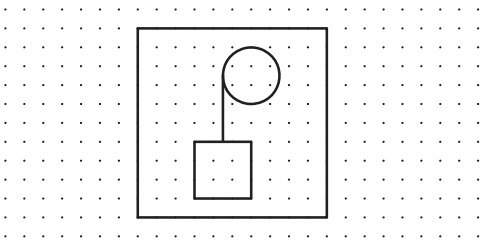
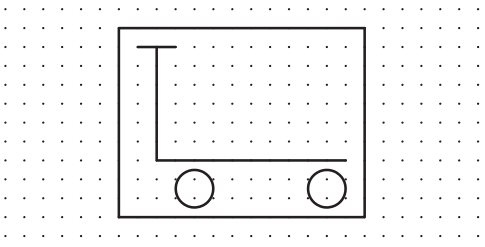
Item no.	Reg. no.	Graphical symbol	Description
18.6	**X8064**		Conveyor, vibrating type, closed
18.7	**X8065**		Elevator, bucket type
18.8	**X8066**		Elevator, bucket type Z-form
18.9	**X8175**		Conveyor, belt type, reversible
18.10	**3841**		Crane
18.11	**3842**		Lift
18.12	**C0094**		Forklift, manually operated

Table 2 *(continued)*

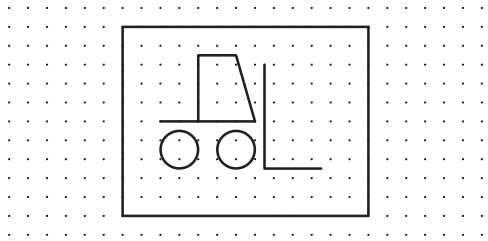
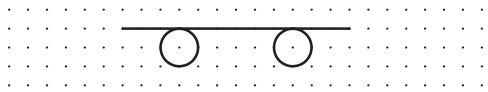
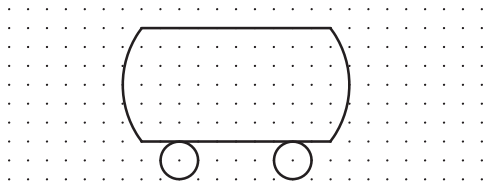
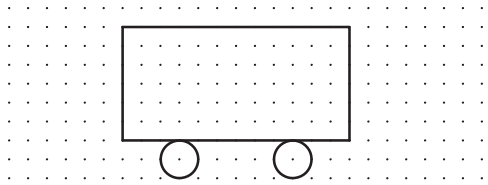
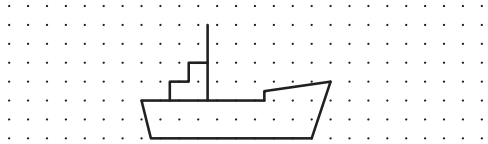
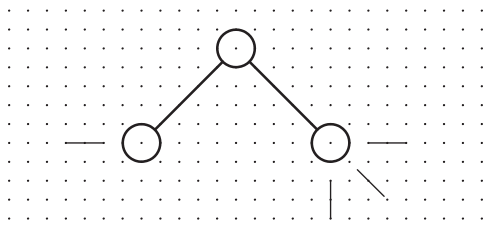
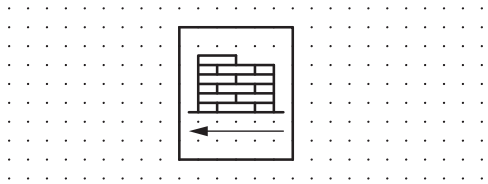
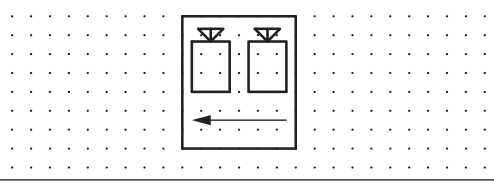
Item no.	Reg. no.	Graphical symbol	Description
18.13	**3862**		Forklift truck
18.14	**3871**		Industrial truck (general)
18.15	**3874**		Tank car, tank wagon
18.16	**3872**		Box truck
18.17	**3881**		Ship
18.18	**X8142**		Roller conveyor
18.19	**X8143**		Loading arm
18.20	**X8145**		Palletizer
18.21	**X8146**		Bag filling machine

Table 2 *(continued)*

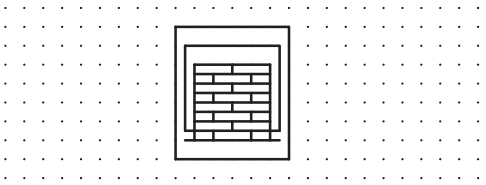
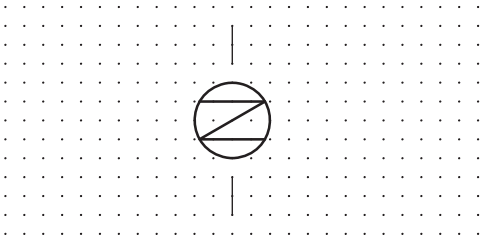
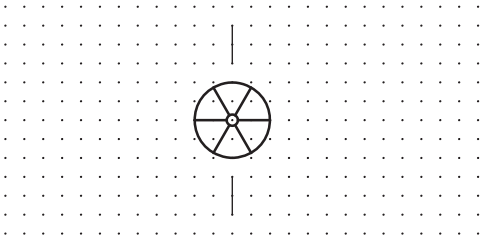
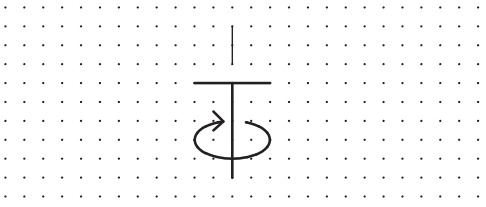
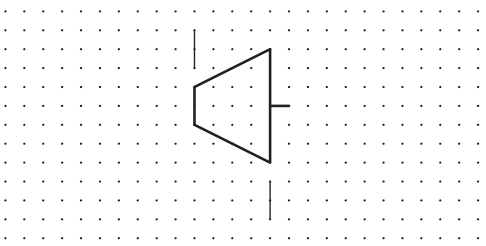
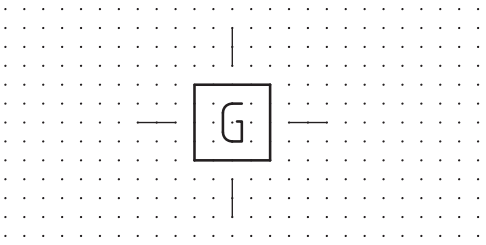
Item no.	Reg. no.	Graphical symbol	Description
18.22	**X8144**		Protective palette covering
19	**PROPORTIONERS, FEEDERS AND DISTRIBUTION FACILITIES**		
19.1	**C2056**		Proportional feeder (general)
19.2	**X8067**		Proportional feeder, rotary valve type
19.3	**C0074**		Feeder, rotary table type
19.4	**C0035**		Proportional feeder, metering type
19.5	**2037**		Spray nozzle
20	**ENGINES**		
20.1	**2571**		Turbine (general)
20.2	**X8167**		Gear

Table 2 *(continued)*

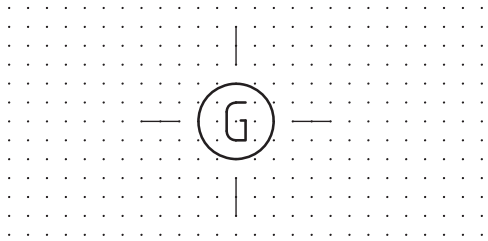
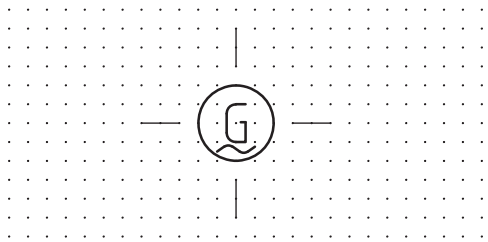
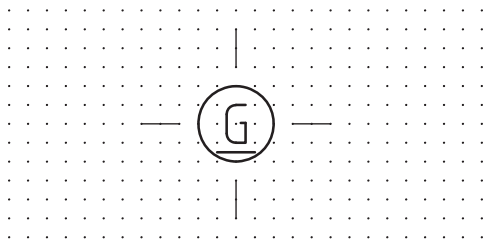
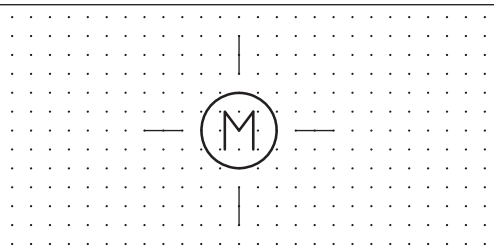
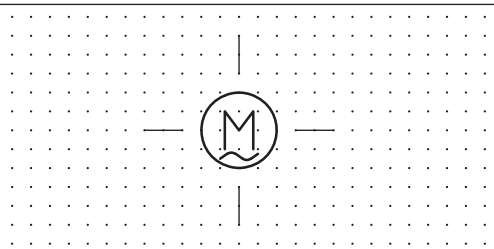
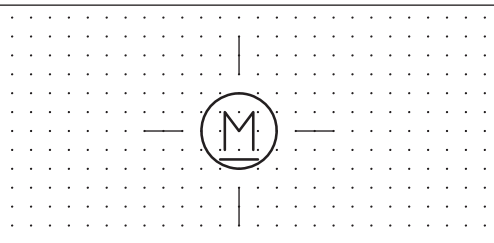
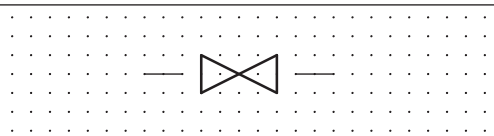
Item no.	Reg. no.	Graphical symbol	Description
20.3	**C0079**		Generator (general)
20.4	**X8154**		Generator, AC
20.5	**X8155**		Generator, DC
20.6	**C0082**		Electric motor (general)
20.7	**X8157**		Electric motor, AC
20.8	**X8158**		Electric motor, DC
21	**VALVE**		
21.1	**2101**		Valve (general)

Table 2 *(continued)*

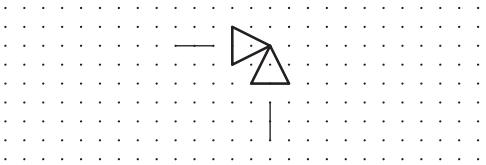
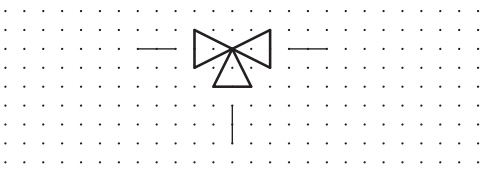
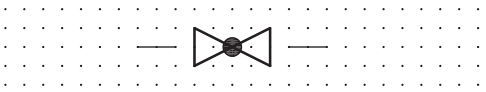
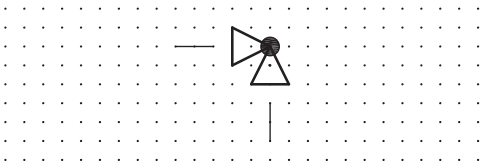
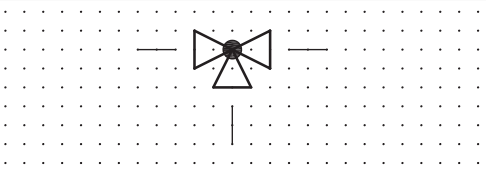
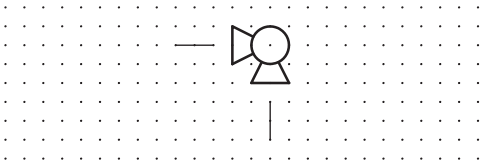
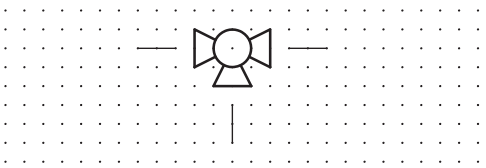
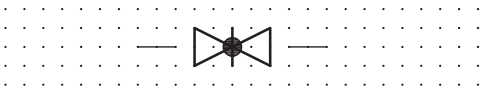
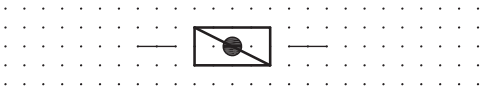
Item no.	Reg. no.	Graphical symbol	Description
21.2	**2102**		Valve, angle type (general)
21.3	**2103**		Valve, three way type (general)
21.4	**X8068**		Valve, globe type
21.5	**X8069**		Valve, angle globe type
21.6	**X8070**		Valve, three way globe type
21.7	**X8071**		Valve, ball type
21.8	**X8072**		Valve, angle ball type
21.9	**X8073**		Valve, three way ball type
21.10	**X8074**		Valve, gate type
21.11	**X8075**		Valve, butterfly type (Form 1)
21.12	**X8075**		Valve, butterfly type (Form 2)
21.13	**X8076**		Valve, needle type

Table 2 *(continued)*

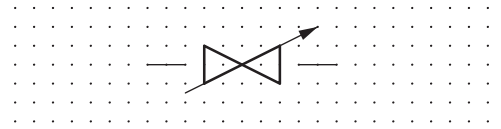
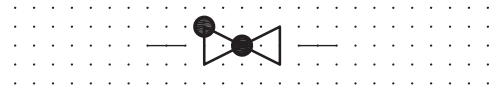
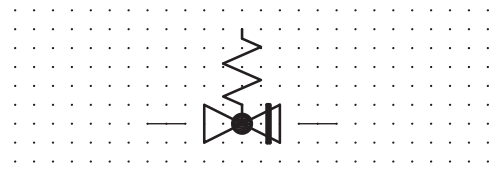
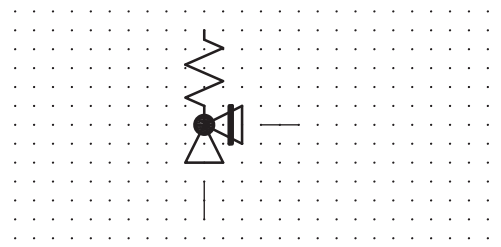
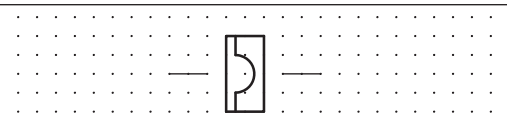
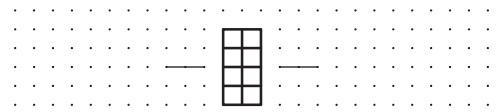
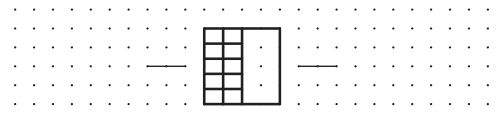
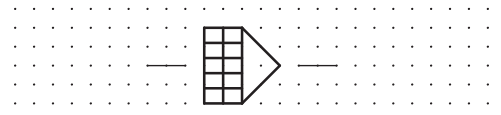
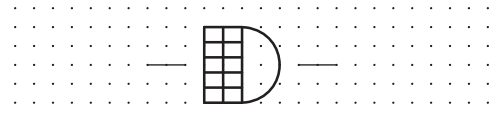
Item no.	Reg. no.	Graphical symbol	Description
21.14	**X8087**		Valve, control type, continuously operated
22	**CHECK VALVE**		
22.1	**X8077**		Check valve (general)
22.2	**X2113**		Check valve globe type
22.3	**X8078**		Swing check valve (Form 1)
22.4	**X8165**		Swing check valve (Form 2)
23	**VALVES AND FITTINGS WITH SAFETY FUNCTION**		
23.1	**X2124**		Safety valve, spring loaded, globe type
23.2	**X2125**		Safety valve, spring loaded, globe angle type
23.3	**X8080**		Rupture disc
23.4	**2036**		Flame arrestor
23.5	**C0087**		Flame arrestor explosion-proof
23.6	**C0088**		Flame arrestor detonation-proof
23.7	**C0091**		Flame arrestor fire-resistant

Table 2 *(continued)*

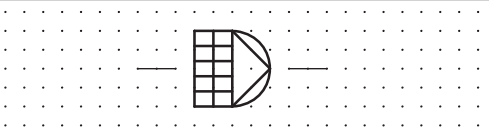
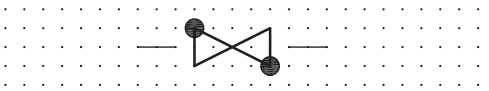
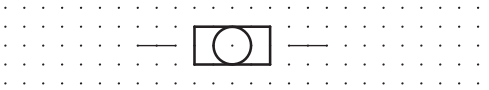
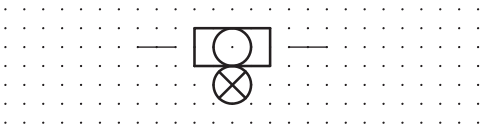
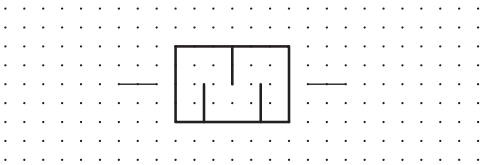
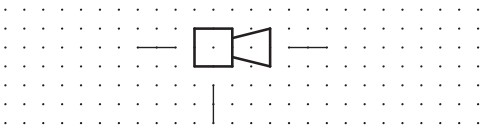
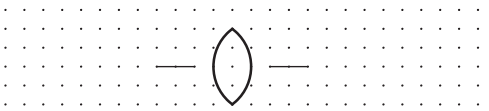
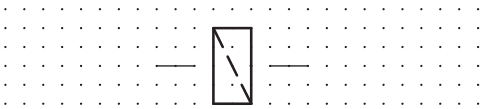
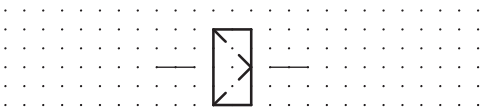
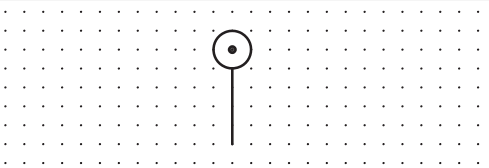
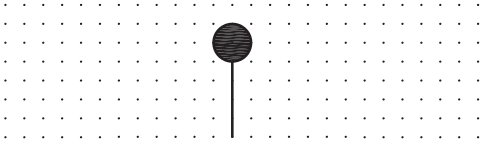
Item no.	Reg. no.	Graphical symbol	Description
23.8	**C0089**		Fire-resistant and detonation-proof flame arrestor out to the atmosphere
23.9	**X8088**		Breather valve
24	**FITTINGS**		
24.1	**2034**		Viewing glass
24.2	**X8089**		Viewing glass with lighting
24.3	**2033**		Silencer
24.4	**C0093**		Mixing nozzle, injector
24.5	**533**		Compensator
24.6	**X8090**		Strainer
24.7	**X8150**		Cone type strainer
24.8	**C0096**		Orifice plate
24.9	**C0097**		Blind disc

Table 2 *(continued)*

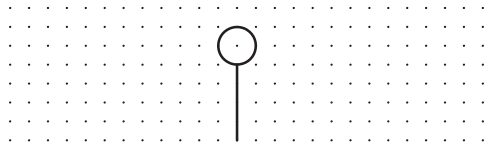
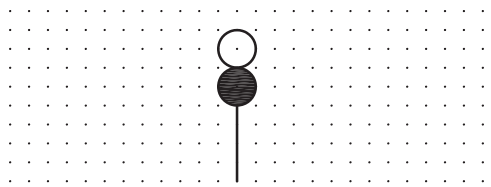
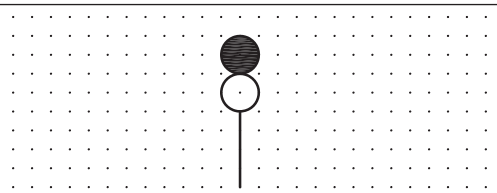
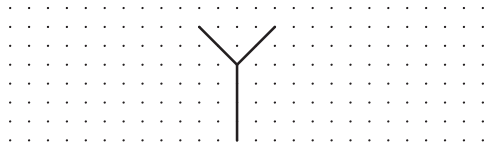
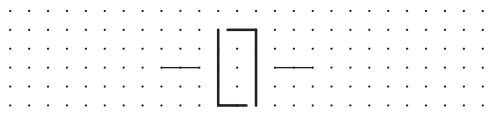
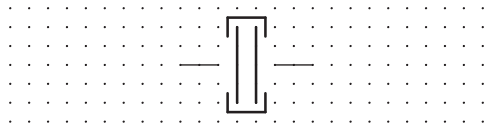
Item no.	Reg. no.	Graphical symbol	Description
24.10	**C0098**		Open disc
24.11	**2044**		Interchangeable disc (blind disc)
24.12	**2045**		Interchangeable disc (open disc in function)
24.13	**2039**		Vent (outlet to the atmosphere for steam/gas)
24.14	**2040**		Funnel
24.15	**2181**		Self-operating release valve (steam trap)
24.16	**511**		Flanged connection
24.17	**516**		Reducer
24.18	**X411**		Hose
24.19	**C0100**		Coupling
24.20	**513**		Clamped flange coupling

Table 2 *(continued)*

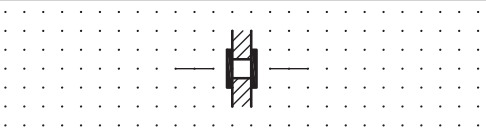
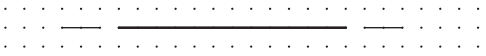
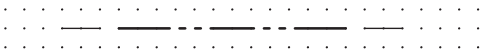
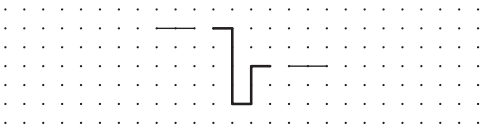
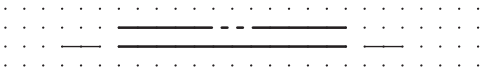
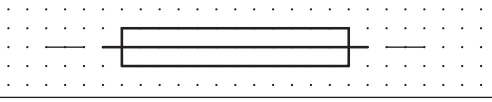
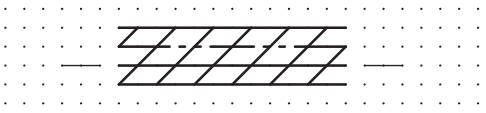
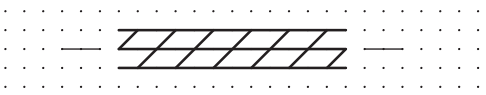
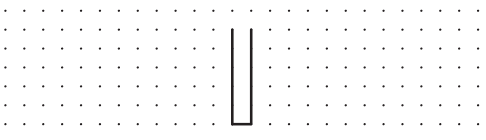
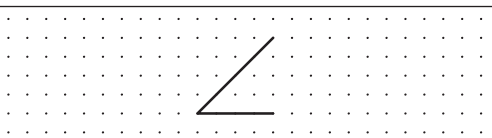
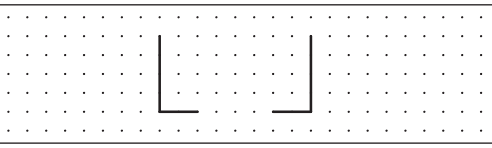
Item no.	Reg. no.	Graphical symbol	Description
24.21	**C0108**		Breakthrough
24.22	**517**		Flanged dummy cover
24.23	**X8152**		Single flange
24.24	**X8153**		Dummy cover
25	**GRAPHICAL SYMBOLS FOR PIPING**		
25.1	**405**		Pipeline
25.2	**X8156**		Secondary pipeline
25.3	**241**		Flowmotion in direction of arrow
25.4	**3061**		Slope
25.5	**2038**		Siphon
25.6	**C0106**		Tracer for heating or cooling
25.7	**X409**		Jacketed pipeline
25.8	**X8174**		Piping, heated or cooled and insulated
25.9	**X322**		Pipeline with thermal insulation
26	**APPARATUS ELEMENTS**		
26.1	**C2005**		Support leg
26.2	**C2006**		Support bracket
26.3	**C2007**		Support skirt

Table 2 *(continued)*

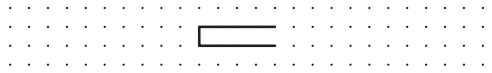
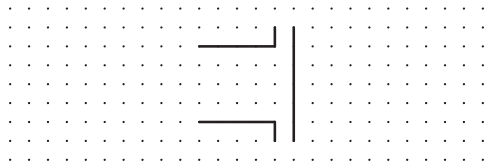
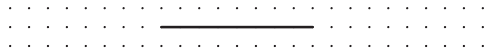
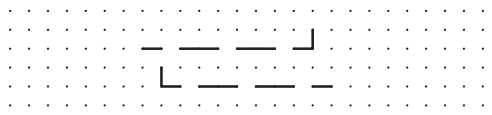
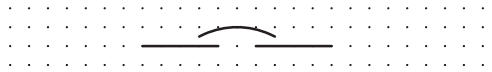
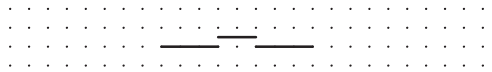
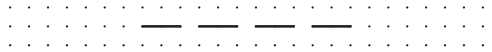
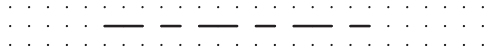
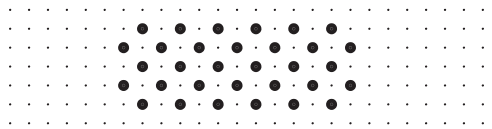
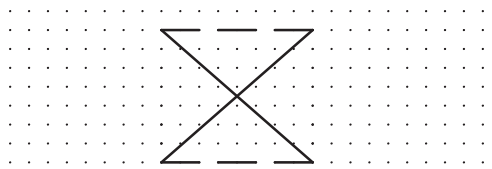
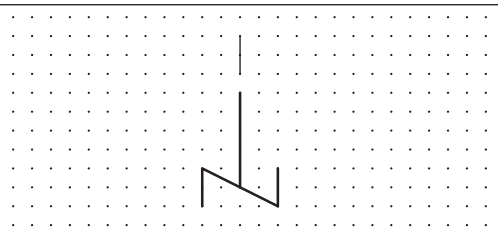
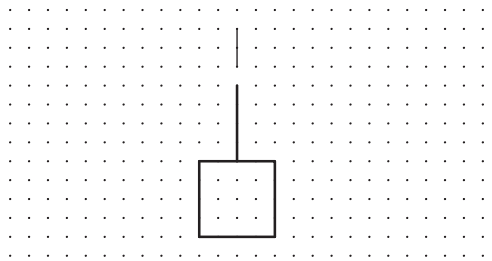
Item no.	Reg. no.	Graphical symbol	Description
26.4	**C2008**		Support ring
26.5	**X8159**		Manhole
26.6	**X8160**		Socket, connection nozzle
27	**INTERNALS**		
27.1	**C2044**		Tray (general)
27.2	**X8166**		Tray with baffle
27.3	**C2010**		Tray, bubble-cap type
27.4	**C2011**		Tray, valve type
27.5	**2602**		Sieve tray, screen or sieve element
27.6	**C2047**		Filter insert (general)
27.7	**2604**		Fluidized bed
27.8	**X8141**		packing
28	**AGITATORS, STIRRERS**		
28.1	**2672**		Agitator (general), stirrer (general)
28.2	**C2019**		Agitator, flate-blade paddle type

Table 2 *(continued)*

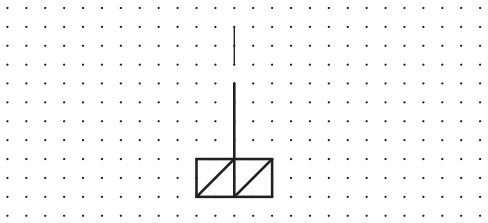
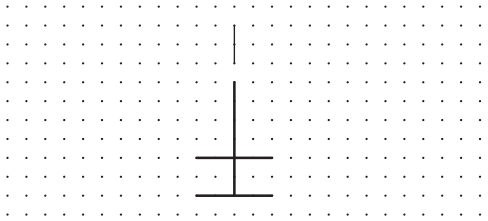
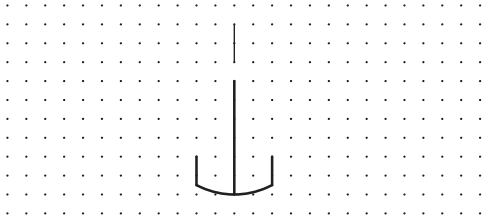
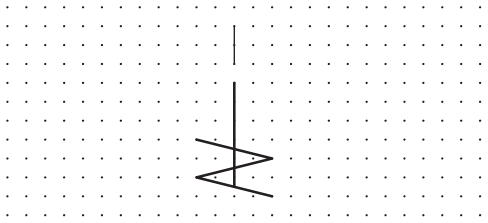
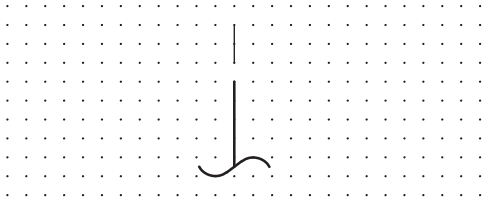
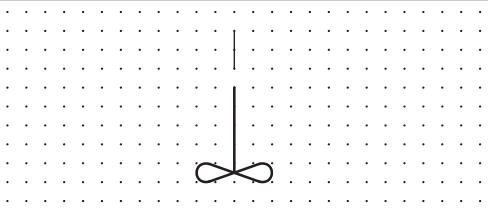
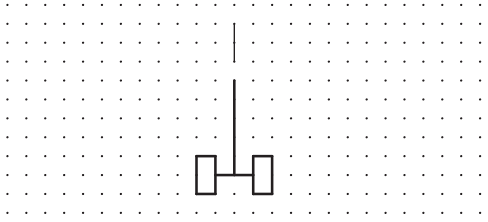
Item no.	Reg. no.	Graphical symbol	Description
28.3	**C2020**		Agitator, gat paddle type
28.4	**C2021**		Agitator, cross-beam type
28.5	**C2022**		Agitator, anchor type
28.6	**C2023**		Agitator, helical type
28.7	**C2024**		Agitator, impeller type
28.8	**C2025**		Agitator, propeller type
28.9	**C2026**		Agitator, disc type

Table 2 *(continued)*

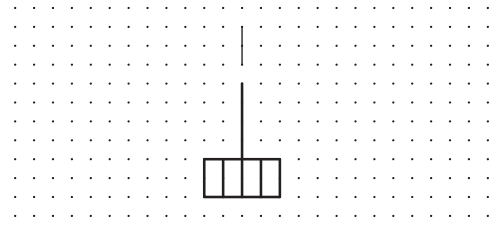
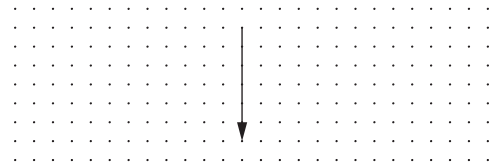
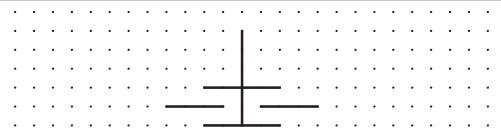
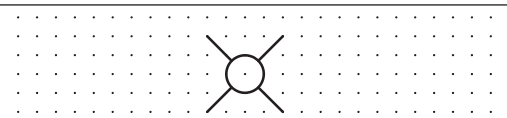
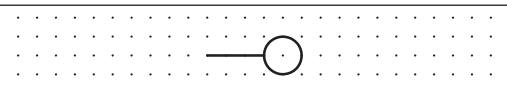
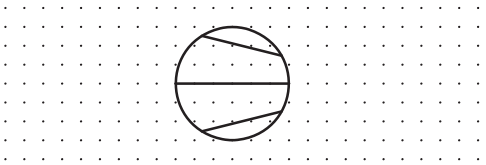
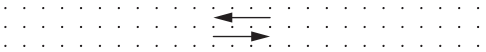
Item no.	Reg. no.	Graphical symbol	Description
28.10	**C2027**		Agitator, turbine type
29	**INTERNAL CHARACTERISTICS AND BUILT-IN COMPONENTS**		
29.1	**C2028**		Gravity type, settling type
29.2	**C2030**		Electrostatic type
29.3	**C2031**		Electromagnetic type
29.4	**C2033**		Disc type
29.5	**C0240**		Crushing
29.6	**C024**		Gear type, gearwheels type
29.7	**C2034**		Hammer type
29.8	**C2035**		Impact type
29.9	**C2036**		Jaw type
29.10	**321**		Liquid type, wet type
29.11	**C2037**		Roller type
29.12	**C2038**		Cone type

Table 2 *(continued)*

Item no.	Reg. no.	Graphical symbol	Description
29.13	**X8176**		Jet type
29.14	**3831**		Vibration type

Annex A
(informative)

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Bibliography

[1] IEC 62424, *Representation of process control engineering — Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools*

[2] IEC 60617 (all parts), *Graphical symbols for diagrams*

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