AMERICAN STANDARD

Graphical Symbols for Heating, Ventilating, And Air Conditioning

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Reaffirmed 1953

Sponsors
American Institute of Electrical Engineers
The American Society of Mechanical Engineers

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AMERICAN NATIONAL STANDARD

This standard is one of more than 4000 approved as either a USA Standard or as an American Standard. It became an American National Standard in October 1969 when the Institute changed its name to American National Standards Institute, Inc.

Printed in U.S.A.

FOREWORD

This standard has been developed by the ASA Sectional Committee on Standardization of Graphical Symbols and Abbreviations for Use on Drawings, Z32. The work of this committee is under the joint sponsorship of the American Institute of Electrical Engineers and the American Society of Mechanical Engineers.

This standard, one of a group which will ultimately replace the present American Standard Graphical Symbols for Use on Drawings in Mechanical Engineering, Z32.2-1941, replaces pages 12 through 14, and 17 and 18 of Z32.2-1941.

In preparing the list of heating, ventilating, and air-conditioning symbols for use on drawings, over one hundred and fifty companies, engineers, and contractors, and their representatives were consulted. Great care was exercised to avoid conflicts with the symbols being assembled by committees in allied fields. The air-conditioning symbols were selected from a compilation of the ASA Sectional Committee on Refrigeration Nomenclature, B53.

The symbols shown are a minimum requirement.

Following approval of the sectional committee, sponsor organizations, and the American Standards Association, this proposal was designated as an American Standard on May 23, 1949.

Officers of Sectional Committee on Standardization of Graphical Symbols and Abbreviations for Use on Drawings, Z32

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American Standard

Graphical Symbols for Heating, Ventilating, and Air Conditioning

Scope

This standard has been developed for use on drawings. Architects, contractors, and engineers, by the use of these symbols on their plans, will have a standard method of indication for heating, ventilating, air conditioning, and allied items. Confusion in the interpretations of requirements can thus be avoided.

Basic Principles

Clarity and simplicity were considered paramount in the assembling of these symbols. Whenever possible, simplification in the drafting was primarily considered and identification letters were used only when there was a question of an error because of similarity of form. Only those symbols, about which there was nationwide consensus, were included. There are still many symbols that are used in a particular section but are not nationally recognized.

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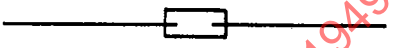
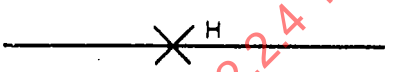
1 AIR ELIMINATOR

2 ANCHOR

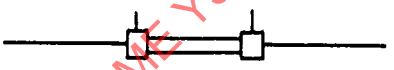
3 EXPANSION JOINT



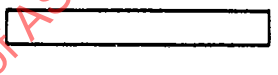
4 HANGER OR SUPPORT



5 HEAT EXCHANGER



6 HEAT TRANSFER SURFACE, PLAN
(INDICATE TYPE SUCH AS CONVECTOR)



7 PUMP
(INDICATE TYPE SUCH AS VACUUM)

8 STRAINER

9 TANK (DESIGNATE TYPE)

10 THERMOMETER

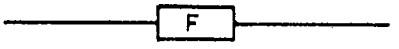
11 THERMOSTAT

12 TRAPS

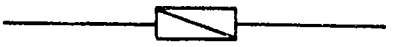
12.1 BOILER RETURN

12.2 BLAST THERMOSTATIC

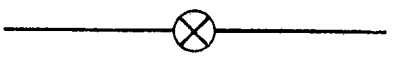
12.3 FLOAT



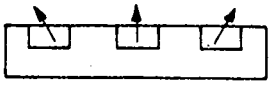
12.4 FLOAT AND THERMOSTATIC



12.5 THERMOSTATIC

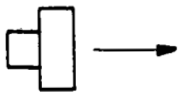


13 UNIT HEATER
(CENTRIFUGAL FAN), PLAN

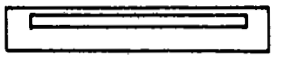


GRAPHICAL SYMBOLS FOR HEATING

14 UNIT HEATER (PROPELLER), PLAN

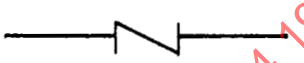


15 UNIT VENTILATOR, PLAN



16 VALVES

16.1 CHECK



16.2 DIAPHRAGM

16.3 GATE

16.4 GLOBE

16.5 LOCK AND SHIELD

16.6 MOTOR OPERATED

16.7 REDUCING PRESSURE

16.8 RELIEF
(EITHER PRESSURE OR VACUUM)

17 VENT POINT

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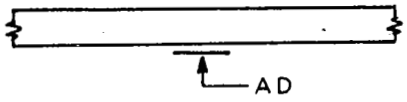
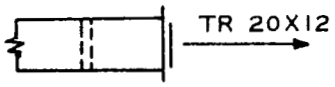
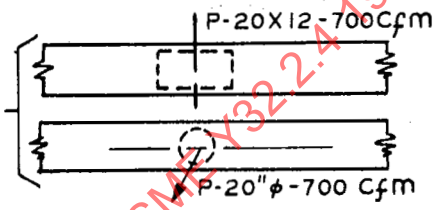
18 ACCESS DOOR



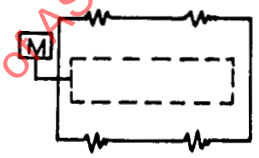
19 ADJUSTABLE BLANK OFF



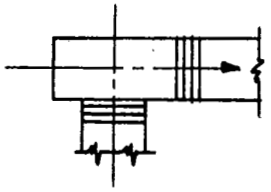
20 ADJUSTABLE PLAQUE



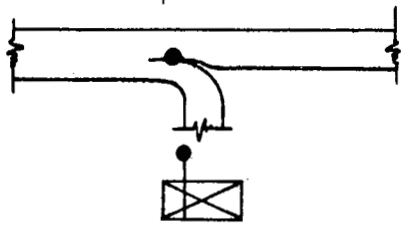
21 AUTOMATIC DAMPERS



22 CANVAS CONNECTIONS

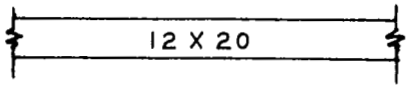


23 DEFLECTING DAMPER

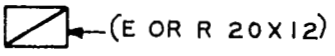


24 DIRECTION OF FLOW

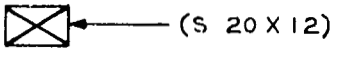
25 DUCT (1ST FIGURE, SIDE SHOWN; 2ND SIDE NOT SHOWN)



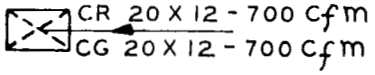
26 DUCT SECTION (EXHAUST OR RETURN)



27 DUCT SECTION (SUPPLY)

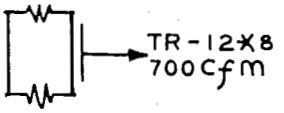


28 EXHAUST INLET CEILING (INDICATE TYPE

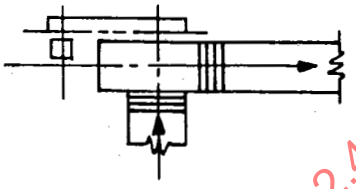


GRAPHICAL SYMBOLS FOR VENTILATING

29 EXHAUST INLET WALL (INDICATE TYPE

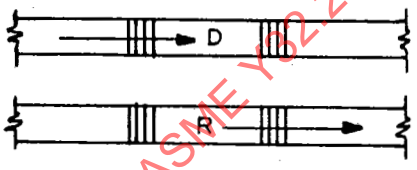


30 FAN AND MOTOR WITH BELT GUARD

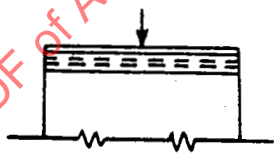


31 INCLINED DROP IN RESPECT TO AIR FLOW

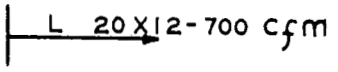
32 INCLINED RISE IN RESPECT TO AIR FLOW



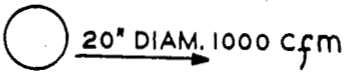
33 INTAKE LOUVERS ON SCREEN



34 LOUVER OPENING

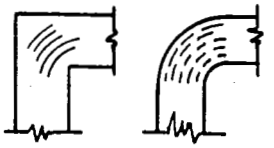


35 SUPPLY OUTLET CEILING (INDICATE TYPE

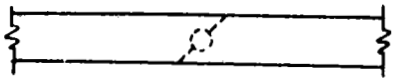


36 SUPPLY OUTLET WALL (INDICATE TYPE

37 VANES



38 VOLUME DAMPER



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39 CAPILLARY TUBE

40 COMPRESSOR

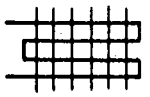
41 COMPRESSOR, ENCLOSED, CRANK-CASE, ROTARY, BELTED

42 COMPRESSOR, OPEN CRANKCASE, RECIPROCATING, BELTED

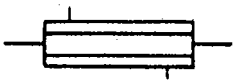
43 COMPRESSOR, OPEN CRANKCASE, RECIPROCATING, DIRECT DRIVE

44 CONDENSER, AIR COOLED, FINNED, FORCED AIR

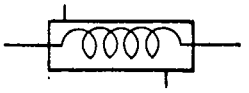
45 CONDENSER, AIR COOLED, FINNED, STATIC



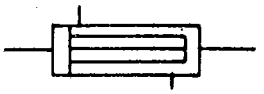
46 CONDENSER, WATER COOLED, CONCENTRIC TUBE IN A TUBE



47 CONDENSER, WATER COOLED, SHELL AND COIL



48 CONDENSER, WATER COOLED, SHELL AND TUBE



49 CONDENSING UNIT, AIR COOLED

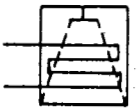
50 CONDENSING UNIT, WATER COOLED

51 COOLING TOWER

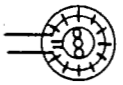
52 DRYER

GRAPHICAL SYMBOLS FOR AIR CONDITIONING

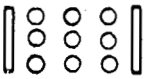
53 EVAPORATIVE CONDENSER



54 EVAPORATOR, CIRCULAR, CEILING TYPE, FINNED

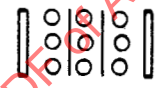


55 EVAPORATOR, MANIFOLDED, BARE TUBE, GRAVITY AIR

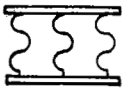


56 EVAPORATOR, MANIFOLDED, FINNED, FORCED AIR

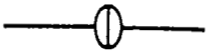
57 EVAPORATOR, MANIFOLDED, FINNED, GRAVITY AIR



58 EVAPORATOR, PLATE COILS, HEADERED OR MANIFOLD

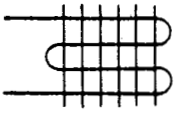


59 FILTER, LINE

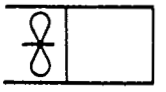


60 FILTER & STRAINER, LINE

61 FINNED TYPE COOLING UNIT, NATURAL CONVECTION



62 FORCED CONVECTION COOLING UNIT



63 GAUGE

64 HIGH SIDE FLOAT

65 IMMERSION COOLING UNIT

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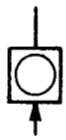
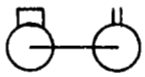
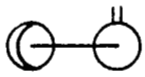
66 LOW SIDE FLOAT



67 MOTOR-COMPRESSOR, ENCLOSED CRANKCASE, RECIPROCATING, DIRECT CONNECTED

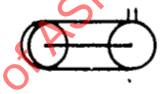


68 MOTOR-COMPRESSOR, ENCLOSED CRANKCASE, ROTARY, DIRECT CONNECTED

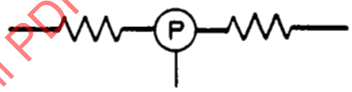


69 MOTOR-COMPRESSOR, SEALED CRANKCASE, RECIPROCATING

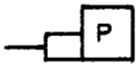
70 MOTOR-COMPRESSOR, SEALED CRANKCASE, ROTARY



71 PRESSURESTAT

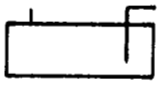


72 PRESSURE SWITCH



73 PRESSURE SWITCH WITH HIGH PRESSURE CUT-OUT

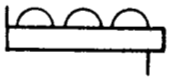
74 RECEIVER, HORIZONTAL



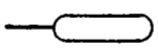
75 RECEIVER, VERTICAL

76 SCALE TRAP

77 SPRAY POND



78 THERMAL BULB



79 THERMOSTAT (REMOTE BULB)