

VIBRATION ELIMINATORS

APPLICATION

Oscillations, vibrations and the resulting noise are not only a nuisance, but also considerably shorten the service life of the materials subjected to them. Rigidly installed piping within machines and assemblies which is subjected to vibration may therefore fracture or show other signs of failure after a short period. This endangers the reliability in service and the economic operation of a plant.

For all such cases, the fitting of Vibration Eliminators is advisable. These purpose-designed elements prevent the transmission of oscillations and in addition reduce noise.

Vibration Eliminators are mainly used in refrigerating engineering, for cooling installations, air conditioning units, refrigerating systems etc. They are resistant to the usual cooling agents such as R12, R13, R22, R24, R114, R502 and similar, but not to NH_3 . The vibration absorbers are designed for a nominal pressure of 25 atg and a temperature range from -70°C to $+200^\circ\text{C}$ (-94°F to $+392^\circ\text{F}$).

FITTING

The vibration absorbers are fitted in suction and pressure piping of refrigeration compressors in the immediate vicinity of the shut-off valves. The direction of oscillation must always be noted before fitting, since the hoses only absorb movements which run perpendicular to the hose axis. To fit the hoses, it is therefore often first necessary to bring the piping connections into the correct fitting position for the hoses by means of suitable elbow pieces (fig. 1).

If fitted correctly, the vibrations are picked up and absorbed by the compressor-side hose end, while the other hose end, which is connected to the downstream piping run, remains steady apart from minor residual vibrations. However, to prevent the transmission of these residual vibrations to the piping system, a reliable anchor has to be fitted at this point, directly behind the hose, which is provided with a noise reducing insert.

In the case of additional vibrations in the direction of the hose axis, the fitting of only one vibration absorber is not sufficient, because the hose and the brazed joint would be subjected to excessive compressive or tensile stresses by the vibrational forces. For these applications, two vibration absorbers have to be fitted in a 90° arrangement (fig. 2).

Vibration Eliminators must be connected free from stress and the two hose connections must not be offset in relation to each other. The vibration absorbers must not be stretched or compressed either during fitting or in operation. The longitudinal changes of the piping brought about by temperature variations must be absorbed by expertly fitted metal hoses or expansion joints specially designed for this purpose.

If condensate should form on the outside of the hoses, particularly when they are fitted into suction piping with sub-zero operating temperatures, the hoses must be connected horizontally. If fitted vertically, condensate may collect in the lower hose fitting as a result of repeated switching on and off, which would deform and destroy the hose when it freezes. In these cases it is generally best to wind a waterproof tape around the hoses.

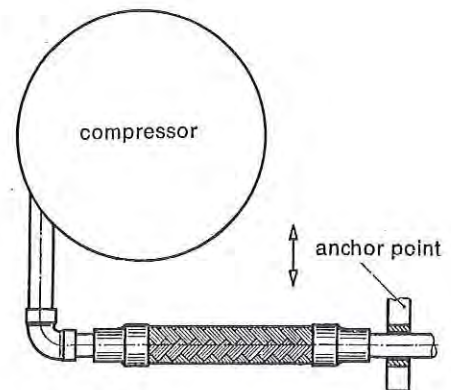


Fig. 1

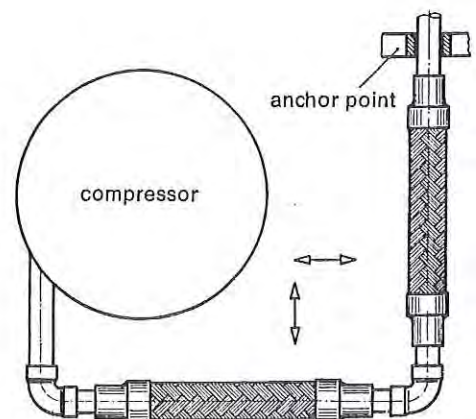


Fig. 2

REFER TO PAGE 209 FOR SELECTION AND ORDERING DETAILS

BRIDGESTONE ACTROL-FLEX

flexible pipe insulation



what is ACTROL-FLEX?

Actrol-Flex is an unsurpassed insulation for a wide variety of refrigeration, air conditioning and heating systems.

It is extruded in continual lengths from a modified vinyl formulation with properties which are superior to conventional insulants. Actrol-Flex pipe insulation is available in a wide range of sizes from 10 mm to 76 mm (3/8" to 3") Inside Diameter.

Actrol-Flex, with its low vapour permeability and with a temperature range of -73.3°C to +104.4°C (-100°F to 220°F) meets the most rigorous demands made on flexible pipe insulation.

It prevents sweating of cold water lines in commercial and industrial buildings as well as in homes and also prevents heat loss from hot water lines. With a high degree of flexibility and outstanding tensile strength, Actrol-Flex is invaluable to manufacturers of air conditioning and refrigeration units.

| PHYSICAL PROPERTIES | | |
|--|---|-------------|
| temperature range | -73.3°C to 104.4°C (-100°F to 220°F) | |
| flame resistance | self-extinguishing | |
| ozone resistance | good | |
| flexibility | * excellent | |
| odor | negligible | |
| oil resistance | no swelling or softening | |
| * Actrol-Flex becomes hard at -30°C (-20°F); it will increase in brittleness as the temperature drops below -30°C. This normal hardening characteristic does not affect thermal efficiency or resistance to water vapour transmission. | | |
| • SPECIFICATIONS — meets or exceeds specifications for most military and OEM applications including the popular MIL-P-15280D and General Services Administration Specification HH-1-00573 (GSA-FFS). | | |
| PROPERTY | MIL-P-15280D | Actrol-Flex |
| K. factor — BTU/in/ft ² /hr/°F | .30 max. at 75°F. | .28 |
| density — lbs/ft ³ | 5-10 | 7 |
| water absorpt.—lbs/ft cut surface | 0.1 max. | 0.1 |
| compression set —% of deflection | 24 max. | 16 |
| tensile strength—lbs/in ² | 40 min. | 80 |
| moisture vapor absorption—lbs/ft ² | .02 max. | .02 |
| water vapor transmission — grain/hr/ft ² (in. of Hg. in) | .30 max. | .1 |

| INSIDE DIAMETER | | 10 mm (3/8") WALL | 13 mm (1/2") WALL | 19 mm (3/4") WALL |
|-----------------|----------|-------------------|-------------------|-------------------|
| mm | ins. | CAT. NO. | CAT. NO. | CAT. NO. |
| 10 | 3/8" | 2101 | 21023 | — |
| 13 | 1/2" | 2102 | 21024 | — |
| 16 | 5/8" | 2103 | 21025 | — |
| 19 | 3/4" | 2104 | 21026 | 21048 |
| 22 | 7/8" | 2105 | 21027 | 21049 |
| 25 | 1" | 2106 | 21065 | — |
| 27 | 1-1/16" | 2107 | 21028 | 21050 |
| 29 | 1-1/8" | 2108 | 21029 | 21051 |
| 33 | 1-5/16" | 21010 | 21031 | 21052 |
| 35 | 1-3/8" | 21011 | 21032 | 21053 |
| 38 | 1-1/2" | 21012 | 21033 | — |
| 42 | 1-21/32" | 21014 | 21035 | 21055 |
| 48 | 1-29/32" | — | 21036 | 21056 |
| 50 | 2" | 21016 | 21037 | — |
| 54 | 2-1/8" | 21017 | 21038 | 21057 |
| 60 | 2-3/8" | — | 21039 | 21058 |
| 67 | 2-5/8" | — | 21040 | — |
| 76 | 3" | — | 21041 | — |

AVAILABLE IN 2 METRE (6.6 ft.) LENGTHS

PRE-SLIT ACTROL-FLEX

Actrol-Flex is normally supplied unslit. However, for insulating existing pipe systems, pre-slit Actrol-Flex can be supplied for a slight additional charge. It can be easily and conveniently slipped over existing lines, fittings and joints. The longitudinal slit is then joined with —

TEMPFLEX LA6B ADHESIVE

Refer Page 210-c for available sizes

PIPE & SHEET INSULATION, TAPES AND ADHESIVES — CONTINUED ON FOLLOWING PAGES

ACPAR PARTS — TO HELP YOU BUILD REFRIGERATION SYSTEM RELIABILITY

ARMAFLEX SHEET INSULATION



Armaflex II Sheet is always applied with the smooth side out. It is easy to cut to fit around piping or projections.

DESCRIPTION

Armstrong Armaflex II Sheet Insulation is a flexible, foamed plastic material incorporating the three most desirable properties of a low-to-medium temperature insulation: high insulation efficiency, high resistance to water vapour and ease of application. It is particularly adaptable to insulating of large tanks of all shapes, ductwork, irregular vessels, and oversize piping.

Armaflex II Sheets may be applied with full adhesive coverage to metal surfaces that will operate as high as 82°C (180°F). When used within recommended usage ranges, Armaflex II Sheet thicknesses have been calculated to prevent condensation on cold surfaces. Temperatures below freezing point may require application of the sheet in multiple layers.

When used for pipe insulation, with adhesive at joints only, Armaflex II Sheets can be applied to lines that will operate as high as 104°C (220°F).

ADVANTAGES

High Insulating Efficiency — Armaflex II Sheets have a low thermal conductivity of 0.26 Btu/hr. sq.ft. (F/in) at 70°F mean temperature. Because this material resists deterioration, efficiency remains high.

High Resistance to Water Vapour and Air Transmission — Uniformly sized closed cell structure seals out air and moisture.

Fast, Easy Application — Armaflex II Sheets can be applied directly to clean, dry metal surfaces with Armstrong 520 Adhesive. Conventional mechanical supports are unnecessary. High resistance to water vapour and air transmission eliminates the need for a separate vapour barrier, but outdoor installations should be protected with a vinyl lacquer type coating.

ARMAFLEX II SHEET INSULATION SHOULD ALWAYS BE APPLIED WITH THE SMOOTH OR SKIN SIDE OUT.

3

| ARMAFLEX II SHEET | | | |
|-------------------|-----------|------|--|
| CAT. NO. | THICKNESS | | SHEET SIZE |
| | mm | ins. | |
| 21071 | 6 | 1/4" | 1.2 mm x 2.9 mm Approx. 4 ft. x 3 ft. |
| 21072 | 9 | 3/8" | |
| 21073 | 13 | 1/2" | |
| 21074 | 19 | 3/4" | |
| 21075 | 25 | 1" | |

ARMAFLEX PIPE INSULATION

Similar in specification to Armaflex II Sheet Insulation, Armaflex Pipe Insulation is flexible for fast easy applications. Can be slipped on in tubular form before piping is in place or slit and snapped over piping already installed.

Supplied in 2 Metre Lengths.

| INSIDE DIAMETER | | 9 mm (3/8") WALL | 13 mm (1/2") WALL | 19 mm (3/4") WALL |
|-----------------|----------|------------------|-------------------|-------------------|
| mm | ins. | CAT. NO. | CAT. NO. | CAT. NO. |
| 10 | 3/8" | 210151 | 210176 | 210201 |
| 12 | 1/2" | 210152 | 210177 | 210202 |
| 15 | 5/8" | 210153 | 210178 | 210203 |
| 20 | 3/4" | 210154 | 210179 | 210204 |
| 22 | 7/8" | 210155 | 210180 | 210205 |
| 25 | 1" | 210156 | 210181 | 210206 |
| 27 | 1-1/16" | 210157 | 210182 | 210207 |
| 28 | 1-1/8" | 210158 | 210183 | 210208 |
| 32 | 1-1/4" | 210159 | 210184 | 210209 |
| 35 | 1-3/8" | 210160 | 210185 | 210210 |
| 40 | 1-1/2" | 210161 | 210186 | 210211 |
| 42 | 1-5/8" | 210162 | 210187 | 210212 |
| 48 | 1-15/16" | 210163 | 210188 | 210213 |
| 51 | 2" | 210164 | 210189 | 210214 |
| 54 | 2-1/8" | 210165 | 210190 | 210215 |
| 60 | 2-3/8" | 210166 | 210191 | 210216 |
| 67 | 2-5/8" | 210167 | 210192 | 210217 |
| 76 | 3" | 210169 | 210194 | 210219 |
| 80 | 3-3/16" | — | 210198 | — |
| 89 | 3-1/2" | — | 210195 | 210220 |
| 101 | 4" | — | 210196 | 210221 |
| 114 | 4-1/2" | — | 210197 | 210222 |

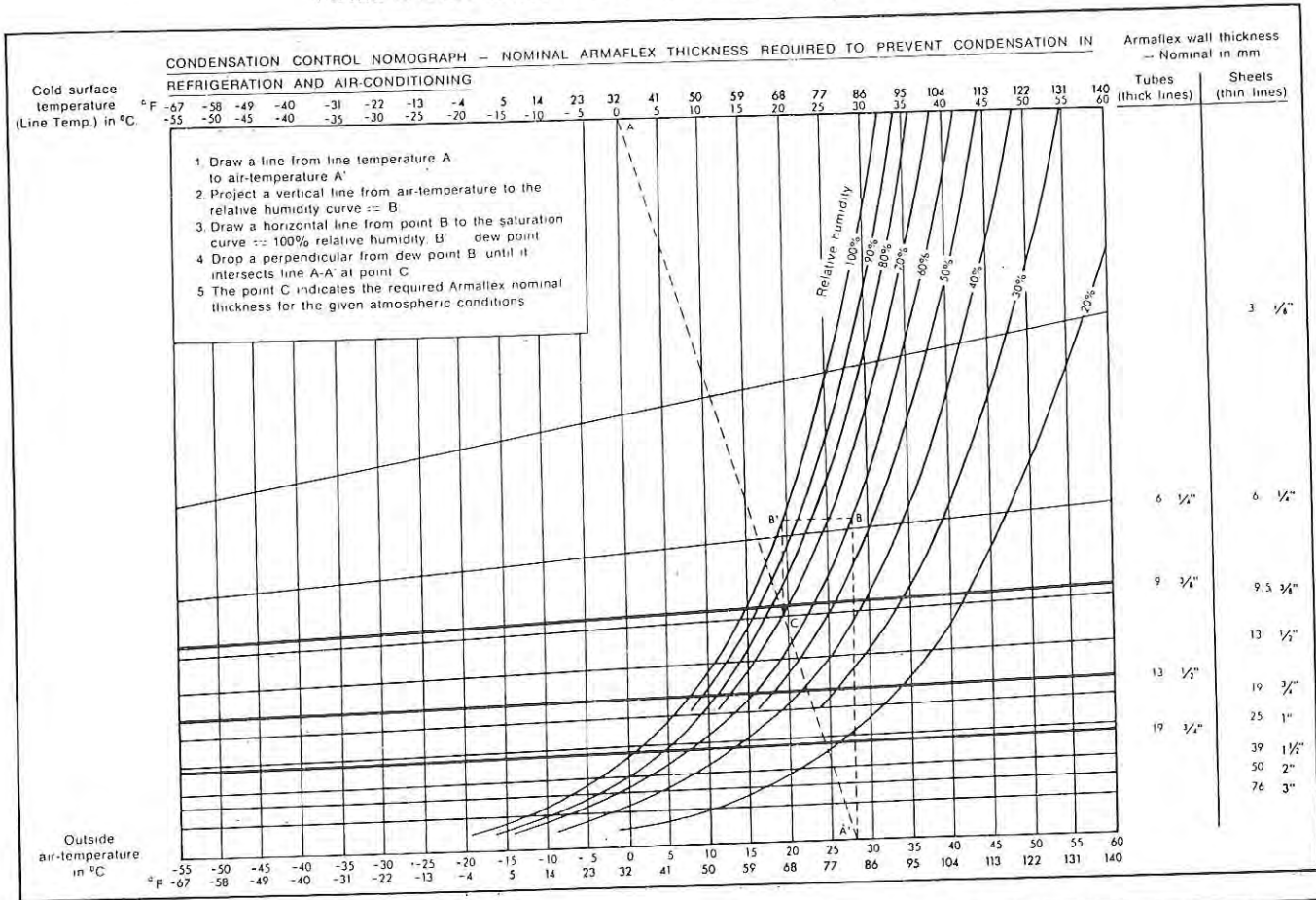
FOR ARMSTRONG CONDENSATION CONTROL NOMOGRAPH — Refer Page 210-b
 FOR CORRESPONDING SIZES OF COPPER AND IRON PIPES — Refer Page 210-b
 FOR ARMSTRONG 520 ADHESIVE AND INSULATING TAPE — Refer Page 210-c

YOUR ONE STOP SOURCE FOR ACPAR PARTS

ARMAFLEX INSULATION

TECHNICAL DATA

ARMAFLEX CONDENSATION CONTROL NOMOGRAPH



| CORRESPONDING SIZES OF COPPER TUBE & IRON PIPE FOR ARMAFLEX PIPE INSULATION | | | | | | | | | | | |
|---|---------|-----------------------|--------|---------------------|------|-------------------------|----------|-----------------------|------|---------------------|--------|
| ARMAFLEX PIPE SIZE I.D. | | TUBING AND PIPE SIZE | | | | ARMAFLEX PIPE SIZE I.D. | | TUBING AND PIPE SIZE | | | |
| | | COPPER TUBE O.D. TUBE | | IRON PIPE NOM. BORE | | | | COPPER TUBE O.D. TUBE | | IRON PIPE NOM. BORE | |
| mm | ins. | mm | ins. | mm | ins. | mm | ins. | mm | ins. | mm | ins. |
| 10 | 3/8" | 10 | 3/8" | — | — | 42 | 1-5/8" | — | — | 32 | 1-1/4" |
| 12 | 1/2" | 12 | 1/2" | — | — | 48 | 1-15/16" | — | — | 40 | 1-1/2" |
| 15 | 5/8" | 15 | 5/8" | — | — | 51 | 2" | 51 | 2" | — | — |
| 20 | 3/4" | 20 | 3/4" | — | — | 54 | 2-1/8" | — | — | — | — |
| 22 | 7/8" | 22 | 7/8" | 15 | 1/2" | 60 | 2-3/8" | — | — | 50 | 2" |
| 25 | 1" | 25 | 1" | — | — | 67 | 2-5/8" | — | — | — | — |
| 27 | 1-1/16" | — | — | 20 | 3/4" | 76 | 3" | — | — | 65 | 2-1/2" |
| 28 | 1-1/8" | — | — | — | — | 80 | 3-3/16" | — | — | — | — |
| 32 | 1-1/4" | 32 | 1-1/4" | — | — | 89 | 3-1/2" | — | — | 80 | 3" |
| 35 | 1-3/8" | — | — | 25 | 1" | 101 | 4" | — | — | — | — |
| 40 | 1-1/2" | 40 | 1-1/2" | — | — | 114 | 4-1/2" | — | — | 100 | 4" |

VIRGINIA VASCOCEL SHEET INSULATION

AN IMPROVED UNICELLULAR INSULATION WITH A NEW LOW K - FACTOR OF 0.23/0.24 AVERAGE AND A WATER VAPOUR TRANSMISSION RATE OF 0.050 PERM.

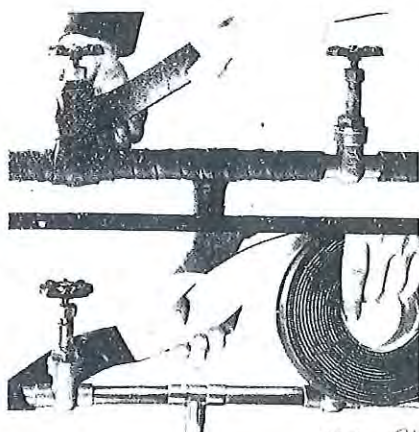
| CAT. NO. | THICKNESS | | PART No. | SHEET SIZE ins. |
|----------|-----------|------|----------|-----------------|
| | mm | ins. | | |
| 21092 | 10 | 3/8" | R780 | 36" x 48" |
| 21093 | 12 | 1/2" | R781 | 36" x 48" |
| 21094 | 20 | 3/4" | R782 | 36" x 48" |

ADHESIVE FOR VASCOCEL SHEET INSULATION - REFER PAGE 210-c

INSULATION TAPE

ARMAFLEX TAPE

Armaflex Insulation Tape is applied by removing release paper as the tape is spirally wrapped around the piping or fittings and pressed firmly in place. Pressure-sensitive adhesive, factory applied to the Armaflex Insulation Tape, adheres firmly and forms a long-lasting bond with metal surfaces.



- Thermal conductivity, Btu/hr sq ft (deg F/in.)
 - 75 F mean temperature 0.27
 - 90 F mean temperature 0.276
- Upper temperature use limit, deg F up to 180
- Water vapor permeability, perm-in. 0.1
- Water absorption,
 - 28-day immersion, % by volume less than 4
- Ozone resistance good

CAT. NO. 21089 30 ft. Roll - 1/8" thick x 2" wide - self-adhering

use 21090



PRESSTITE INSULATION TAPE

Use to wrap expansion valve, thermal sensing bulb, suction lines or other parts to protect from engine heat. Insulates and seals. Stops water drip. Sticks to all metal and rubber parts. Self-adhering.

CAT. NO. 21087 30 ft. Roll - 1/8" thick x 2" wide - No. PT1

VIRGINIA FOAM INSULATION TAPE

A unicellular insulation tape with a K-Factor of 0.26 at 75 degrees F. and water vapor transmission rate of 0.07 perm. An easy to use tape that presents a neat, smooth finish appearance.

CAT. NO. 21088 30 ft. Roll - 1/8" thick x 2" wide - No. K501



BLACK MASTIC TAPE P/N 3841

Used for insulating pipes and fittings where space and/or shape prevent the use of pipe or sheet type insulation.

2" x 1/4"
in 4.5 kg Packs
CAT. NO.
21086

INSULATION ADHESIVE

TEMPFLEX LA6B ADHESIVE

Used to seal all seams and butt joints of Actrol-Flex Pipe Insulation

| | |
|-----------------|-------------|
| CAT. NO. 210116 | 500 ml Can |
| CAT. NO. 210117 | 1 Litre Can |
| CAT. NO. 210118 | 4 Litre Can |



ARMSTRONG 520 ADHESIVE

Used to seal all seams and butt joints of Armaflex Pipe and Sheet Insulation

| | |
|-----------------|-------------|
| CAT. NO. 210105 | 500 ml Tin |
| CAT. NO. 210106 | 1 Litre Tin |
| CAT. NO. 210108 | 4 Litre Tin |

VIRGINIA VASCOCEL ADHESIVE

Used in conjunction with Virginia Vascofel Sheet Insulation

| | |
|-----------------|----------------------|
| CAT. NO. 210109 | 1 Pint Can. No. VAP |
| CAT. NO. 210110 | 1 Quart Can. No. VAQ |

STYRENE FOAM * ADHESIVE

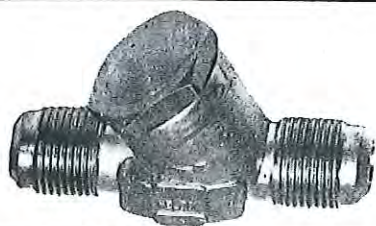
An adhesive for use with Styrene Foam Insulation

CAT. NO. 210113 20 Litre Drum

* Styrene Foam Sheet - Refer Page 232-a

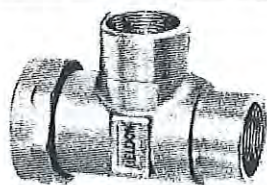
CHECK VALVES

NON-CHATTERING CHECK VALVE



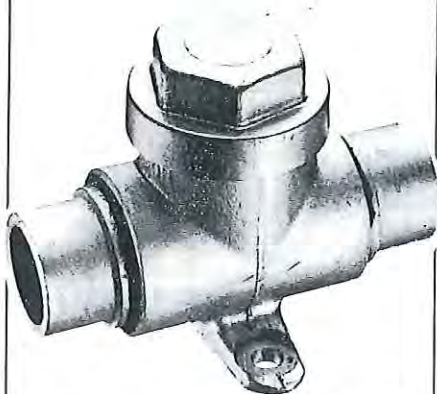
| CAT. NO. | SIZE | HELDON P/N |
|--|-----------|------------|
| FLARE CONNECTIONS | | |
| 2131 | 1/4" | 3300 |
| 2132 | 3/8" | 3301 |
| 2133 | 1/2" | 3302 |
| 2134 | 5/8" | 3303 |
| SOLDER CONNECTIONS | | |
| 2135 | 1/4" O.D. | 3353 |
| 2136 | 3/8" O.D. | 3351 |
| 2137 | 1/2" O.D. | 3350 |
| 2138 | 5/8" O.D. | 3352 |
| SOLDER CONNECTIONS WITH COPPER EXTENSIONS | | |
| 21311 | 1/4" O.D. | 3370 |
| 21312 | 3/8" O.D. | 3371 |
| 21313 | 1/2" O.D. | 3372 |
| 21314 | 5/8" O.D. | 3373 |
| MALE GAS CONNECTIONS NPT OR BSP | | |
| 21316 | 1/4" | 3306 |
| 21317 | 3/8" | 3305 |
| | 1/2" | 3307 |

NON-CHATTERING CHECK VALVE ANGLE TYPE – TEFLON SEATS Female Gas Connections – BSP or NPT



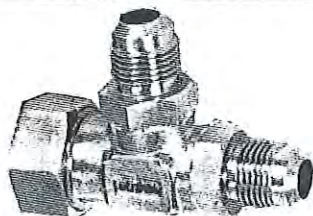
| CAT. NO. | SIZE | HELDON P/N |
|----------|------|------------|
| 21324 | 1/8" | 4232 |
| 21325 | 1/4" | 4233 |
| 21326 | 3/8" | 4234 |
| 21327 | 1/2" | 4235 |
| 21328 | 3/4" | 4236 |

STRAIGHT THROUGH CHECK VALVE FEMALE SOLDER



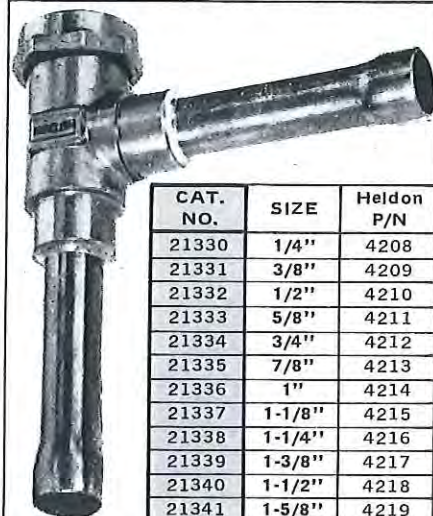
| CAT. NO. | SIZE | HELDON P/N |
|----------|--------|------------|
| 21375 | 3/4" | 4249 |
| 21376 | 7/8" | 4250 |
| 21377 | 1" | 4251 |
| 21378 | 1-1/8" | 4252 |
| 21379 | 1-3/8" | 4253 |
| 21380 | 1-5/8" | 4254 |
| 21381 | 2-1/8" | 4255 |

NON-CHATTERING CHECK VALVE ANGLE TYPE – TEFLON SEATS MALE FLARE CONNECTIONS



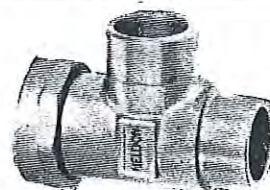
| CAT. NO. | SIZE | HELDON P/N |
|----------|------|------------|
| 21319 | 1/4" | 4200 |
| 21320 | 3/8" | 4201 |
| 21321 | 1/2" | 4202 |
| 21322 | 5/8" | 4203 |
| 21323 | 3/4" | 4204 |

NON-CHATTERING CHECK VALVE ANGLE TYPE – TEFLON SEATS Solder Connections with Copper Extensions

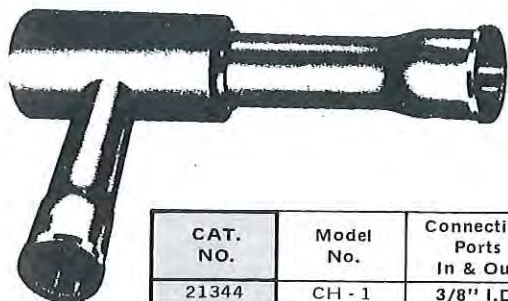


| CAT. NO. | SIZE | HELDON P/N |
|----------|--------|------------|
| 21330 | 1/4" | 4208 |
| 21331 | 3/8" | 4209 |
| 21332 | 1/2" | 4210 |
| 21333 | 5/8" | 4211 |
| 21334 | 3/4" | 4212 |
| 21335 | 7/8" | 4213 |
| 21336 | 1" | 4214 |
| 21337 | 1-1/8" | 4215 |
| 21338 | 1-1/4" | 4216 |
| 21339 | 1-3/8" | 4217 |
| 21340 | 1-1/2" | 4218 |
| 21341 | 1-5/8" | 4219 |
| 21342 | 2-1/8" | 4220 |

NON-CHATTERING CHECK VALVE ANGLE TYPE – TEFLON SEATS SOLDER CONNECTIONS



| CAT. NO. | SIZE | HELDON P/N |
|----------|--------|------------|
| 21362 | 1/4" | 3382 |
| 21363 | 3/8" | 3383 |
| 21364 | 1/2" | 3384 |
| 21365 | 5/8" | 3385 |
| 21366 | 3/4" | 3386 |
| 21367 | 7/8" | 3387 |
| 21368 | 1" | 3388 |
| 21369 | 1-1/8" | 3389 |
| 21370 | 1-1/4" | 3390 |
| 21371 | 1-3/8" | 3391 |
| 21373 | 1-5/8" | 3393 |
| 21374 | 2-1/8" | 3394 |



CHATLEFF CHECK VALVES


FEATURES

Positive pressure operation.
 Instant action – Non-chattering, even under extremely low flow 3.4 kPa (½ psi).
 Operates efficiently at either high or low pressures.
 Maximum temperature range –268°C to +260°C (–450°F to +500°F).
 Hermetically sealed – Operates in all positions.
CONSTRUCTION: Extruded brass throughout with copper extension tubes. The sealing surface is Teflon seated on brass. Each unit is 100% leak tested and flow tested before shipment.
***MODEL CH-1400**
 Body: Meehanite casting. Seating – Teflon on steel.
 Ports: Steel, 2" to 4½" I.D. as specified by the user.
 Screw-in type sealing on "O" Rings.
 Internal Orifice: Total area 4¾ sq. ins.
 Mounting: Vertical (Standard).
 Overall Size: 4-7/8" Diam. x 7-13/16".


| CAT. NO. | Model No. | Connection Ports In & Out | Internal Orifice Ins. |
|----------|------------|---------------------------|-----------------------|
| 21344 | CH - 1 | 3/8" I.D. | 7/16 |
| 21345 | CH - 2 | 1/2" I.D. | 7/16 |
| 21346 | CH - 3 | 5/8" I.D. | 5/8 |
| 21347 | CH - 4 | 3/4" I.D. | 5/8 |
| 21348 | CH - 5 | 7/8" I.D. | 5/8 |
| 21349 | CH - 6 | 1-1/8" I.D. | 15/16 |
| 21350 | CH - 7 | 1-3/8" I.D. | 15/16 |
| 21352 | CH - 1200 | 1-5/8" O.D. | 1-1/2 |
| 21356 | *CH - 1400 | 2" to 4½" I.D. | |


3


CHECK VALVES


|  | STRAIGHT THROUGH – MALE FLARE | | | | | | | |
|--|-------------------------------|----------|-------|----------|-------|----------|-------|------------|
| | SIZE FLARE | HELDON | | HUDSON | | CASTEL* | | SIZE FLARE |
| | | CAT. NO. | P/N | CAT. NO. | P/N | CAT. NO. | P/N | |
| 1/4" | 21454 | 3363 | — | — | 21476 | 3110/2 | 1/4" | |
| 5/16" | 21455 | 3364 | — | — | — | — | 5/16" | |
| 3/8" | 21456 | 3365 | — | — | 21477 | 3110/3 | 3/8" | |
| 1/2" | 21457 | 3366 | — | — | 21478 | 3110/4 | 1/2" | |
| 5/8" | — | — | — | — | 21479 | 3110/5 | 5/8" | |
| 3/4" | — | — | 21410 | 1467 | 21480 | 3110/6 | 3/4" | |

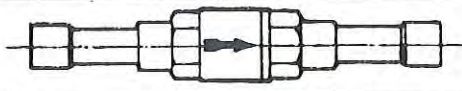
* Castel Check Valves supplied complete with 2 Flare Nuts.

|  | STRAIGHT THROUGH – FEMALE SOLDER | | | | | |
|---|----------------------------------|----------|-------|----------|--------|-----------|
| | SIZE O.D. | HUDSON | | CASTEL | | SIZE O.D. |
| | | CAT. NO. | P/N | CAT. NO. | P/N | |
| 7/8" | 21413 | A13735 | 21481 | 3120/7 | 7/8" | |
| 1-1/8" | 21414 | A13736 | 21482 | 3120/9 | 1-1/8" | |
| 1-3/8" | 21415 | A13737 | 21483 | 3120/11 | 1-3/8" | |
| 1-5/8" | 21416 | A13738 | 21484 | 3120/13 | 1-5/8" | |
| 2-1/8" | 21417 | A13739 | 21485 | 3120/17 | 2-1/8" | |
| 2-5/8" | — | — | 21486 | 3120/21 | 2-5/8" | |

|  | HUDSON | | |
|---|--------------------|----------|----------|
| | ANGLE – MALE FLARE | | |
| | SIZE FLARE | CAT. NO. | PART No. |
| 1/4" | 2141 | 1462 | |
| 3/8" | 2142 | 1464 | |
| 1/2" | 2143 | 1465 | |
| 5/8" | 2144 | 1466 | |

|  | HUDSON | | |
|---|-----------------------|----------|----------|
| | ANGLE – FEMALE SOLDER | | |
| | SIZE O.D. | CAT. NO. | PART No. |
| 1/2" | 2148 | 9003 | |
| 5/8" | 2149 | 9004 | |

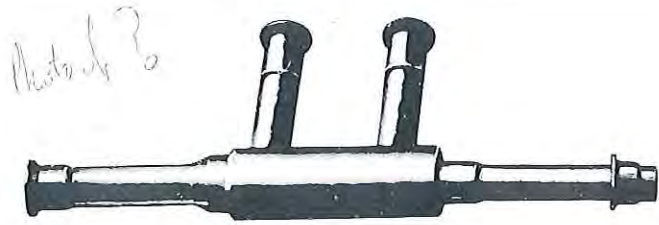
|  | HUDSON | | |
|--|-----------------------|----------|----------|
| | ANGLE – FEMALE SOLDER | | |
| | SIZE O.D. | CAT. NO. | PART No. |
| 1-3/8" | 21420 | A15737 | |
| 1-5/8" | 21421 | A15738 | |
| 2-1/8" | 21422 | A15739 | |

| CASTEL CHECK VALVE – EXTENDED ENDS SOLDER CONNECTIONS | | |
|--|----------|-----------------|
|  | | |
| SIZE O.D. | CAT. NO. | CASTEL PART No. |
| 1/4" | 21487 | 3130/2 |
| 3/8" | | 3130/3 |
| 1/2" | | 3130/4 |
| 5/8" | | 3130/5 |
| 3/4" | | 3130/6 |

CHATLEFF

RESTRICTOR CHECK VALVES

| CAT. NO. | TYPE | ORIFICE ins. | CAPACITY TONS R22 |
|----------|---------|--------------|-------------------|
| 21451 | RCV-125 | 1/8 | Up to 2.5 |
| 21452 | RCV-187 | 3/16 | 2.5 to 7.0 |



Construction and Specifications

Body – Heavy wall solid drawn brass tube Alloy A.
 Seat – 70/30 brass rod machined to fine limits.
 Ports – Refrigeration quality copper tube.
 Valve Plunger & Needle – Stainless steel 0.303 cold drawn.
 Static Burst Pressure – 17238 kPa (2500 psi).
 Max. Operating Press. – 3448 kPa (500 psi).



CHECK VALVES

Type NRV

The Check Valve Type NRV can be fitted at any point in liquid, suction, and hot-gas lines in freezing, refrigeration, and air-conditioning systems for fluorinated refrigerants (R12, R22, R502, etc.). NRV is equipped with a special-type damping piston ensuring silent operation. The valve is also suitable for installation in pipe lines where pulsations may occur, for example, in the pressure

line from a compressor and in pipe line arrangements for reversal of heat pump installations. NRV cannot be stripped down. The valve body of the NRV solder design must be wound round with a wet rag during soldering. Solder of a melting point not higher than 620°C (1150°F) should be used.



NRV 6-15

| CAT. NO. | Type | Design | Conn. | Code No. | (5) Flow Factor | | (1) P.D. kPa (PSI) | Temp. of medium °C (°F) | Max. Test pressure kPa (psig) | |
|----------|---------|--------------|-------|----------|-----------------|------|--------------------|-------------------------|-------------------------------|-------|
| | | | | | kv | Cv | | | | |
| 21458 | NRV 6 | straight-way | flare | 1/4 | 20-1001 | 0.56 | 0.54 | 6.9 | -50 to +100 | 2758 |
| 21459 | NRV 10 | | | 3/8 | 20-1002 | 1.38 | 1.33 | (1) | | |
| 21460 | NRV 12 | | | 1/2 | 20-1003 | 1.97 | 1.90 | 4.8 | | |
| 21461 | NRV 15 | | | 5/8 | 20-1004 | 3.60 | 3.48 | (0.7) | | |
| 21463 | NRV 10S | | | 3/8 | 20-1011 | 1.38 | 1.33 | 6.9 (1) | | |
| 21464 | NRV 12S | Solder | flare | 1/2 | 20-1012 | 1.97 | 1.90 | 4.8 | (-58 to +212) | (400) |
| 21465 | NRV 15S | | | 5/8 | 20-1013 | 3.60 | 3.48 | (0.7) | | |
| 21466 | NRV 22S | | | 7/8 | 20-1020 | 8.50 | 8.22 | 4.1 | | |
| 21467 | NRV 28S | | | 1-1/8 | 20-1021 | 19.0 | 18.38 | (0.6) | | |
| 21468 | NRV 35S | | | 1-3/8 | 20-1022 | 29.0 | 28.05 | | | |



NRV 6s-15s

| Type | (2) Rated liquid capacity tons (TR) | | | (3) Rated suction vapour cap. tons (TR) | | | (4) Rated hot-gas capacity cu. ft/h | | |
|--------|-------------------------------------|------|-------|---|------|-------|-------------------------------------|------|-------|
| | R 12 | R 22 | R 502 | R 12 | R 22 | R 502 | R 12 | R 22 | R 502 |
| | NRV 6 | 1.7 | 2.2 | 1.5 | 0.2 | 0.2 | 0.2 | 30.7 | 27.5 |
| NRV 10 | 4.1 | 5.3 | 3.6 | 0.4 | 0.6 | 0.5 | 75.9 | 67.8 | 58.2 |
| NRV 12 | 5.8 | 7.6 | 5.3 | 0.5 | 0.7 | 0.6 | 108 | 96.7 | 83.0 |
| NRV 15 | 10.6 | 13.9 | 9.6 | 0.8 | 1.2 | 1.0 | 198 | 178 | 152 |
| NRV 22 | 25.0 | 32.8 | 22.7 | 1.9 | 2.9 | 2.4 | 466 | 420 | 360 |
| NRV 28 | 55.9 | 73.5 | 50.6 | 4.4 | 6.5 | 5.5 | 1045 | 935 | 801 |
| NRV 35 | 85.4 | 113 | 77.5 | 6.6 | 9.9 | 8.3 | 1596 | 1430 | 1221 |



NRV 22s-35s

Type NRVA

The Check Valve Type NRVA is suitable for industrial freezing, refrigeration, and air-conditioning systems for use with both fluorinated refrigerants (R12, R22, R502, etc.) and Ammonia. NRVA has a special type damping piston ensuring silent operation and making the valves suitable for use in pipe lines where pulsations may occur. The check valve can be used in liquid, suction, and hot-gas lines.

Type NRVA has been designed in such a way as to allow easy stripping-down for service. The individual parts of the valve are retained in the valve body by bayonet locks. The spring and the sliding surfaces of the piston are positioned in such a way that they are not effected by the refrigerant flow through the valve.

| CAT. NO. | Type | Weld flange Conn. ins. | Code No. | (5) Flow Factor | | (1) P.D. kPa (PSI) | Temp. of medium °C (°F) | Max. Test pressure kPa (psig) |
|----------|---------|------------------------|----------|-----------------|------|--------------------|-------------------------|-------------------------------|
| | | | | kv | Cv | | | |
| 21469 | NRVA 15 | 1/2 | 20-2000 | 5 | 4.8 | 6.9 (1) | -60 to +140 | 2758 |
| 21470 | NRVA 20 | 3/4 | 20-2001 | 6 | 5.8 | | | |
| 21471 | NRVA 25 | 1 | 20-2002 | 19 | 18.4 | | | |
| 21472 | NRVA 32 | 1-1/4 | 20-2003 | 20 | 19.3 | | | |
| 21473 | NRVA 40 | 1-1/2 | 20-2004 | 44 | 42.6 | | | |
| 21474 | NRVA 50 | 2 | 20-2005 | 44 | 42.6 | | | |
| 21475 | NRVA 65 | 2-1/2 | 20-2006 | 75 | 72.6 | | | |



NRVA 65



NRVA 32

| Type | (3) Rated liquid capacity tons (TR) | | | | (3) Rated suction-vapour capacity tons (TR) | | | | (4) Rated hot-gas capacity cu. ft/h | | | |
|---------|-------------------------------------|------|------|-------|---|------|------|-------|-------------------------------------|------|------|-------|
| | R 717 (NH ₃) | R 12 | R 22 | R 502 | R 717 (NH ₃) | R 12 | R 22 | R 502 | R 717 (NH ₃) | R 12 | R 22 | R 502 |
| NRVA 15 | 129 | 21 | 28 | 19 | 7.6 | 1.9 | 2.8 | 2.4 | 971 | 388 | 353 | 300 |
| NRVA 20 | 150 | 25 | 32 | 21 | 8.9 | 2.2 | 3.3 | 2.8 | 1126 | 452 | 409 | 349 |
| NRVA 25 | 477 | 78 | 102 | 71 | 28 | 6.9 | 10.4 | 8.8 | 3565 | 1433 | 1303 | 1108 |
| NRVA 32 | 626 | 103 | 134 | 93 | 37 | 9.0 | 13.7 | 11.6 | 4695 | 1885 | 1712 | 1458 |
| NRVA 40 | 1290 | 212 | 278 | 192 | 76 | 19 | 28 | 24 | 9708 | 3883 | 3530 | 3036 |
| NRVA 50 | | | | | | | | | | | | |
| NRVA 65 | 2195 | 361 | 473 | 326 | 130 | 32 | 48 | 41 | 16485 | 6601 | 6001 | 5154 |



NRVA 15

- (1) P.D. = the minimum pressure difference at which the valve is completely open.
- (2) Evap. temp. -10°C (+14°F), Liquid temp. +25°C (+77°F) and P.D. 6.9kPa (1 PSI).
- (3) Liquid temp. +25°C (+77°F), P.D. 6.9kPa (1PSI) for NRV 6-10 and 4.8kPa (0.7PSI) for NRV 12-35.
- (4) Cond. temp. +25°C (+77°F), Hot Gas temp. +60°C (+140°F) and P.D. 6.9 kPa (1 PSI).
- (5) kv factor is the water flow in m³/h at a pressure drop across the valve of 100 kPa (14.5 PSI)
Cv factor is the water flow in Imperial gal/min at a pressure drop across the valve of 6.9 kPa (1 PSI).

3



CHECK VALVES

APPLICATION & SELECTION GUIDE

| Type | Features | Typical Applications | |
|-------|---|--|---|
| CK-1 | Piston type. Manual opening stem. | 1. Slow speed compr. disch. lines. 2. Liquid lines. | 3. Suction lines down to -30°C (-25°F). 4. For horizontal lines only. |
| CK-3 | Spring loaded. Teflon seat. | 1. Hot gas lines from pan to evaporator. 2. Liquid lines. | 3. Valve mounts in any position. |
| CK-4A | Light spring loaded. Corrosion resistant, lapped metal seats. Flanged in-line. | 1. Liquid lines. 2. High speed compr. disch. lines, (Not recommended for slow speed compr. disch. lines). | 3. Pump discharge Lines. 4. Suction lines down to -55°C (-60°F). 5. Hot gas lines from pan to evaporator. 6. Valve mounts in any position. |

SPECIFICATIONS : CK-1 - CK-3 - CK4A

| TYPE | BODY MATERIAL | SEAT MATERIAL | FLUID TEMP. LIMITS | DESIGN PRESS.(SWP) | STRAINER |
|------|--|---------------------------------------|------------------------------------|-------------------------------|-----------------------------|
| CK-1 | Semi-Steel | Teflon (20-32) Semi-Steel (40-100) | -30°C to 105°C (-25°F to 220°F) | 2069kPa 300 PSIG (300psig) | Available See Page 121-c |
| CK-3 | Steel | Teflon | " | " | " |
| CK4A | Steel (13-32) Ductile Iron (50-200) | Stainless Steel | -55°C to 105°C (-60°F to 220°F) | 2069kPa 300 PSIG (300psig) | Available See Page 121-c |

CK-1



| Cat. No. | Type | Port Size | | Conn. Weld Flg. | Flow Coeff. Cv |
|----------|------|-----------|-------|-----------------|----------------|
| | | mm | ins. | | |
| 21426 | CK-1 | 20 | 3/4 | 3/4 | 9.5 |
| 21427 | CK-1 | 25 | 1 | 1 | 10.0 |
| 21428 | CK-1 | 32 | 1-1/4 | 1-1/4 | 19.0 |
| 21428A | CK-1 | 40 | 1-5/8 | 1-1/4 | 37.0 |
| 21429 | CK-1 | 50 | 2 | 2 | 51.0 |
| 21430 | CK-1 | 65 | 2-1/2 | 2-1/2 | 82.0 |
| 21431 | CK-1 | 75 | 3 | 3 | 120.0 |
| 21432 | CK-1 | 100 | 4 | 4 | 200.0 |
| 21433 | CK-1 | 125 | 5 | 5 | 285.0 |
| 21434 | CK-1 | 150 | 6 | 6 | 400.0 |

FEATURES

Manual opening stem. Low pressure drop. Gravity closing.
Excellent Discharge Check Valve.
For Suction or liquid as low as -30°C (-25°F).

Use only in horizontal line.

LARGER SIZES AVAILABLE ON APPLICATION.

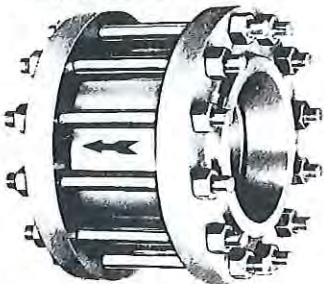
CK-3 IN-LINE CHECK VALVES



| Cat. No. | Type | Conn. FPT | Flow Coeff. Cv |
|----------|------|-----------|----------------|
| 21446 | CK-3 | 1/2" | 9.5 |
| 21447 | CK-3 | 3/4" | 10.5 |
| 21448 | CK-3 | 1" | 11.5 |

These simple, low cost, screw end Check Valves contain steel seats with teflon discs and have cadmium plated steel bodies. They are spring loaded to ensure positive and tight closing characteristics. They are suitable for liquid and hot gas. They are ideal for branch hot gas lines from a single hot gas solenoid valve to prevent liquid cross-over between evaporators during refrigeration. They are also recommended in the hot gas connection from the drain pan to the evaporator for prevention of drain pan frosting.

CK4A



| CAT. NO. | TYPE | PORT SIZE | | CONN. Weld Flg. |
|----------|---------|-----------|-------|-----------------|
| | | mm | ins. | |
| 21435 | CK4A-2 | 13 | 1/2 | 1/2" |
| 21436 | CK4A-3 | 20 | 3/4 | 3/4" |
| 21437 | CK4A-4 | 25 | 1 | 1" |
| 21438 | CK4A-6 | 32 | 1 1/4 | 1 1/4" |
| 21439 | CK4A-8 | 50 | 2 | 2" |
| 21440 | CK4A-9 | 65 | 2 1/2 | 2 1/2" |
| 21441 | CK4A-0 | 75 | 3 | 3" |
| 21442 | CK4A-16 | 100 | 4 | 4" |
| 21443 | CK4A-20 | 125 | 5 | 5* |
| 21444 | CK4A-24 | 150 | 6 | 6* |
| 21445 | CK4A-32 | 200 | 8 | 8* |

*ANSI 300 lb. Slip-on Weld Neck Flange.

FEATURES

Installs in any position. Low pressure drop.
Spring closing. Light weight - Compact.
In-Line Flanged
For Liquid, Suction, hot gas or oil.
Lapped metal to metal seat.
Can be close-coupled to outlet of R/S Control Valves.

| Refrigerant | CK4A CHECK VALVE CAPACITIES IN EVAPORATOR TONS* | | | | | | | | | | | | | | |
|-------------|---|---------------|---------------|-----|----------------|-------|-------|--------|--------|--------|------|------|------|------|------|
| | CONDITIONS | | PRESSURE DROP | | CK4A PORT SIZE | | | | | | | | | | |
| | OF psig | Equiv. °C/kPa | psi | kPa | 1/2" | 3/4" | 1" | 1 1/4" | 2" | 2 1/2" | 3" | 4" | 5" | 6" | 8" |
| | EVAPORATOR TONS* | | | | | | | | | | | | | | |
| R12 | 110°F Liquid | 43°C | 0.75 | 5.2 | 6.60 | 14.0 | 25.0 | 37.0 | 90.0 | 140 | 220 | 410 | 550 | 890 | 1500 |
| | 20°F Suction (110°F Liquid) | -7°C | 10 | 69 | 24.00 | 50.0 | 92.0 | 130.0 | 310.0 | 480 | 770 | 1400 | 1900 | 3100 | 5400 |
| | 97psig Sat. Hot Gas (20°F Evap.) | 670kPa | 0.75 | 5.2 | 1.20 | 2.5 | 4.6 | 6.7 | 16.0 | 24 | 39 | 74 | 98 | 160 | 270 |
| | 110°F Liquid | 43°C | 10 | 69 | 4.30 | 8.9 | 16.0 | 24.0 | 58.0 | 88 | 140 | 260 | 350 | 570 | 990 |
| R22 | 110°F Liquid | 43°C | 0.75 | 5.2 | 8.60 | 18.0 | 33.0 | 48.0 | 120.0 | 180 | 280 | 530 | 710 | 1200 | 2000 |
| | -15°F Suction (110°F Liquid) | -26°C | 10 | 69 | 31.00 | 65.0 | 120.0 | 180.0 | 440.0 | 660 | 1100 | 2000 | 2700 | 4300 | 7400 |
| | 163psig Sat. Hot Gas (-15°F Evap.) | 1125kPa | 0.75 | 5.2 | 1.70 | 3.5 | 6.4 | 9.4 | 23.0 | 34 | 55 | 100 | 140 | 220 | 380 |
| | 110°F Liquid | 43°C | 10 | 69 | 6.00 | 13.0 | 23.0 | 34.0 | 82.0 | 130 | 200 | 380 | 500 | 810 | 1400 |
| R502 | 110°F Liquid | 43°C | 0.75 | 5.2 | 5.70 | 12.0 | 22.0 | 32.0 | 77.0 | 120 | 190 | 350 | 470 | 760 | 1300 |
| | -15°F Suction (110°F Liquid) | -26°C | 10 | 69 | 21.00 | 44.0 | 80.0 | 120.0 | 290.0 | 440 | 710 | 1300 | 1800 | 2900 | 5000 |
| | 180psig Sat. Hot Gas (-15°F Evap.) | 1240kPa | 0.75 | 5.2 | 1.20 | 2.6 | 4.7 | 6.9 | 17.0 | 25 | 40 | 76 | 100 | 160 | 280 |
| | 20°F Liquid | -7°C | 10 | 69 | 52.00 | 110.0 | 200.0 | 290.0 | 700.0 | 1100 | 1700 | 3200 | 4300 | — | — |
| R717 | 0°F Suction (86°F Liquid) | -18°C | 0.75 | 5.2 | 2.40 | 5.0 | 9.2 | 13.0 | 33.0 | 50 | 80 | 150 | 200 | 320 | 560 |
| | 155psig @ 100°F (0°F Evap.) | 1070kPa | 0.75 | 5.2 | 5.00 | 10.0 | 19.0 | 28.0 | 67.0 | 100 | 160 | 300 | 410 | 660 | 1100 |
| | 110°F Liquid | 43°C | 10 | 69 | 18.00 | 38.0 | 69.0 | 100.0 | 250.0 | 370 | 600 | 1100 | 1500 | 2400 | 4200 |
| | 20°F Liquid | -7°C | 10 | 69 | 190.00 | 400.0 | 720.0 | 1100.0 | 2600.0 | 3900 | 6200 | — | — | — | — |

* Capacity Conversion : Tons x 3.517 = kW — kW x 0.28443 = Tons

Liquid Capacities based on -5°C (20°F) liquid, 5.2 kPa (0.75 psi) pressure drop. Correction factors for other commonly used temperatures are near 1.0 and may be neglected.

Discharge Gas Capacities based on 1069 kPa and 100°C (155 psig and 210°F).

Nominal capacity ranges are based on pressure drop range of approx. 13.8 to 34.5 kPa (2 to 5 psi).

Do not oversize; select for pressure drop at or above 13.8 kPa (2 psi).

Suction Gas Capacities based on 5.2 kPa (0.75 psi) pressure drop.

Note: For CK-4A Valve sizes 1/2" to 4", pressure drop to open is 5.2 kPa (0.75 psi). For sizes 5" to 8" pressure drop to open is 4.1 kPa (0.6 psi).

Type CK-2 Condenser Gas Powered Solenoid Valve may also be used as a Check Valve — Refer Page 121-a

HENRY PRESSURE RELIEF VALVES



Type 523 Relief Valve



Type 524 Relief Valve

DESIGN FEATURES :

1. Positive Pressure Relief.
2. Consistent operation at marked pressure setting.
3. Excellent reseating characteristics.
4. A special process reduces valve seat "stickage" to the absolute minimum.
5. Valve stem properly guided for minimum friction.
6. Suitable for Refrigerants 12, 22, 500 and 502.
7. Factory sealed.

Whenever conditions permit, it is advisable to have the relief valve pressure setting (which must not exceed the design working pressure of the vessel) at least 25 percent higher than the normal maximum operating pressure for the refrigerant used.

STRAIGHT-THRU BRASS BODY – FOR R12, R22, R500, R502.

| CAT.NO. | MODEL | CONNECTIONS | | CAPACITY – grams air/sec. (pounds air/min.) | | | |
|---------|------------|-------------|----------|---|--------------|--------------|--------------|
| | | | | Standard Pressure Settings kPa (PSI) | | | |
| | | | | INLET | OUTLET | 1241 (180) | 1620 (235) |
| 21511 | 5231 | 3/8" MPT | 3/8" Fl. | | | 72.6 (9.6) | 84.7 (11.2) |
| 21512 | 5231A | 3/8" MPT | 1/2" Fl. | 77.9 (10.3) | 99.8 (13.2) | 126.3 (16.7) | 145.9 (19.3) |
| 21513 | 5232 | 1/2" MPT | 5/8" Fl. | | 145.2 (19.2) | 183.0 (24.2) | 212.4 (28.1) |
| 21518 | 5242 - 3/4 | 3/4" MPT | 3/4" FPT | | 214.7 (28.4) | 271.4 (35.9) | 314.5 (41.6) |
| 21519 | 5244 - 1 | 1" MPT | 1" FPT | | 382.5 (50.6) | 482.3 (63.8) | 559.4 (74.0) |

ANGLE PRESSURE RELIEF VALVE – FOR AMMONIA



| CAT.NO. | MODEL | CONNECTIONS | | CAPACITY g. air/sec. (lbs. air/min) | |
|---------|---------|-------------|------------|-------------------------------------|--------------|
| | | | | Std. Press. Settings kPa (PSI) | |
| | | | | INLET | OUTLET |
| 21526 | 560 - A | 1/2" FPT | 3/4" FPT | 85.4 (11.3) | 164.8 (21.8) |
| 21528 | 570 - A | 3/4" FPT | 1" FPT | 117.9 (15.6) | 226.0 (29.9) |
| 21530 | 580 - A | 1" FPT | 1-1/4" FPT | 136.8 (18.1) | 263.1 (34.8) |

3 – WAY DUAL SHUT-OFF VALVES – FOR R12, R22, R500, R502, R717 (AMMONIA)

Three-Way Dual Shut-off Valve inlets are shown at the bottom of the illustration. Tight shut-off can be obtained at either extreme of stem position, closing off either the left or right outlet port. When the valve stem is in an intermediate position, the flow is through both outlet ports.

A dual relief valve installation consists of one three-way shut-off valve and two relief valves so arranged that both relief valves cannot be shut off from the protected pressure vessel at the same time. This permits safe removal of either relief valve for repair or replacement, while the vessel is protected and under pressure. EACH relief valve must have sufficient capacity to provide the necessary discharge flow when used alone.

The design of this Three-Way Valve provides full discharge area through the valve regardless of stem position, assuring maximum protection. Furthermore this design provides for convenient parallel mounting of the two relief valves and fulfills Australian Code requirements.

Pressure vessels greater than 0.3m³ (10.5 c.ft.) internal volume require a Dual Relief Valve assembly consisting of:-

3-Way Dual Shut-off Valve with two (2) parallel Relief Valves, each Relief Valve having sufficient capacity when used alone.



Type 545 Relief Valve

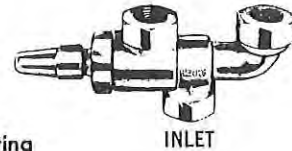
Australian Government Dept. of Housing and Construction – Quote – "Specifications" – Pressure relief devices fitted on pressure vessels in refrigeration systems containing more than 45kg (99 lbs.) of refrigerant shall be fitted with pressure relief valves incorporating a rupture disc in the outlet. Relief valves shall be equal to Henry Type 545.

SIDE INLET – BOTTOM OUTLET

Complete with rupture disc cartridge. For high side to atmosphere discharge. Pressure setting range 1034 to 2413 kPa (150 to 350 PSI).

For Dual Relief Valves and Drier By-Pass Installations or Applications requiring simultaneous opening of one line and closing of another.

Two three-way valves, installed with drier bypass line, permit installation or removal of service drier without air, dirt or moisture entering line.



Type 802-A Parallel Mounting DUCTILE IRON VALVE

PARALLEL MOUNTING – CAPED TYPE, BOTTOM INLET
3103kPa (450 PSI) Working Pressure. Maximum Temp. Rating 149°C(300°F)

| CAT. NO. | MODEL | SIZE CONNECTIONS | BODY MATERIAL | DIMENSIONS – INCHES | | | | Weight kg. (lbs) |
|----------|---------|------------------|---------------|------------------------------|-------|----------------------------|---------------------|------------------|
| | | | | Inlet Center To ELBOW CENTER | | INLET FACE TO OUTLET FACES | OUTLET PORT CENTERS | |
| | | | | CAP END | | | | |
| 21524 | 8021A | 1/2" FPT | Ductile Iron | 1-7/8 | 4-5/8 | 2-7/8 | 3 | 1.4(3) |
| 21523 | 8022A | 3/4" FPT | Ductile Iron | 2-5/16 | 5-1/8 | 3-3/8 | 3-5/8 | 2.0(4½) |
| 21525 | 8022A-B | 1" FPT | Ductile Iron | 2-3/8 | 6-1/2 | 3-1/2 | 4-3/16 | 2.7(6) |

RELIEF VALVE – Combination Diaphragm and Rupture Disc, Forged Brass Body For R12, R22, R500, R502.

DOUBLE PROTECTION – FOR MAXIMUM SAFETY. An exclusive Henry design with built-in replaceable rupture disc cartridge in outlet port. Provides additional protection against loss of refrigerant.

| CAT.NO. | MODEL | SIZE CONNECTIONS | | DIMENSIONS – INCHES | | | WEIGHT kg. (lbs) | |
|---------|-------|--|------------|---------------------|--------|-----------------|------------------|------|
| | | | | CENTER TO FACE | | OVER-ALL HEIGHT | | |
| | | | | INLET | OUTLET | | | SIDE |
| 21547 | 5454 | 1/2" MPT | 5/8" Flare | 2 | 2-3/4 | 6-9/16 | .85 (1-7/8) | |
| 21550 | 5551 | A replacement disc cartridge for Model No.5454 Relief Valve. | | | | | | |

IMPORTANT : Orders must specify valve pressure setting; refrigerant; also rupture disc bursting pressure and operating temperature. **RUPTURE PRESSURES** – 1034 to 2413kPa (150 to 350 PSI). Unless otherwise specified the bursting pressure for the rupture disc will be furnished at the same pressure setting as the relief valve and set at 22.2°C (72°F) our standard setting temperature.

STANDARD : Pressure Relief Valves are designed to satisfy S.A.A. Refrigeration Code 1677 - 1974

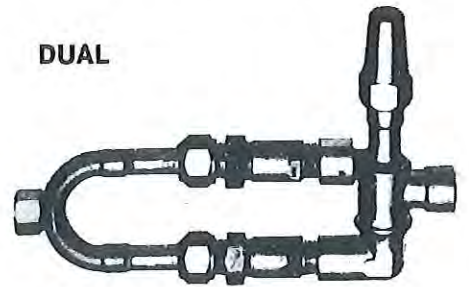
**SINGLE—
STRAIGHT THROUGH**



SINGLE—ELBOW



DUAL



| Cat. No. | Inlet MBSP. | Outlet M.Flare | Orifice mm | Part No. |
|----------|-------------|----------------|------------|----------|
| 21630 | 1/4" | 3/8" | 5 | 3000 |
| 21632 | 3/8" | 1/2" | 5 | 3002 |
| 21633 | 1/2" | 5/8" | 7 | 3003 |
| 21635 | 3/4" | 3/4" | 10 | 3005 |
| — | 1" | 1-1/4" | 15.5 | 3006 |
| | M.P.T. | M.P.T. | | |

| Cat. No. | Inlet MBSP | Outlet | Orifice mm | Part No. |
|----------|------------|--------|------------|----------|
| — | 1/8" | Plain | 5 | 3007 |

| Cat. No. | Inlet FBSP | Outlet FBSP | Relief Valves | Part No. |
|----------|------------|-------------|---------------|----------|
| — | 1/2" | 3/8" | 2x30003 | 3020 |

3

| STANDARD PRESSURE SETTINGS | | OTHER PRESSURE SETTINGS AVAILABLE | | PRESSURE VESSEL DESIGNATION | PRESSURE VESSEL DESIGNATION OR TYPE |
|----------------------------|------|-----------------------------------|------|-----------------------------|-------------------------------------|
| MPa | PSIG | MPa | PSIG | CB3 (OLD CODE) | AS1677 (NEW CODE) |
| 0.7 | 101 | | | | R12 Low Side |
| | | 1.0 | 145 | | R12 High Side — Water Cooled |
| | | 1.2 | 174 | | R22 Low Side |
| | | 1.3 | 188 | | R502 Low Side |
| | | 1.4 | 203 | | R12 High Side — Air Cooled |
| | | 1.6 | 232 | | R22 High Side — Water Cooled |
| | | | | | R502 High Side — Water Cooled |
| 1.8 | 261 | | | | |
| 2.0 | 290 | | | R22 High Side | |
| 2.2 | 319 | | | R502 High Side | |
| | | 2.3 | 333 | | |
| | | 2.4 | 348 | | |
| 2.7 | 391 | | | | R22 High Side — Air Cooled |
| 2.78 | 398 | | | | R502 High Side — Air Cooled |
| 3.0 | 433 | | | | Terry Vessels |
| | | | | | Kelvinator Vessels |
| | | | | | Terry Vessels |

SELECTION OF PRESSURE RELIEF VALVES

With the application of the Unfired Pressure Vessel Code AS1210 to the Air Conditioning and Refrigeration Industry, it has become necessary for pressure relief valves to be fitted to all pressure vessels incorporated in these systems.

The following Table and Graph have been generated to assist in the selection of pressure relief valves. This data has been compiled using Code AS1210, section 8.6 formula $Q_a = \frac{29.84 \times 10^6 F.A^{0.82}}{L.C.} \sqrt{\frac{ZK}{M}}$ with the following assumed factors.

Bare uninsulated vessels, compressibility factor of 1 at flowing conditions, cylindrical vessels with semi-ellipsoidal ends, discharge characteristics of R12 refrigerant.

SEQUENCE : Determine outside dimensions of vessel. Apply these dimensions to Area Factor Table and at the intersection of the two values determine the Area Factor. Apply Area Factor and Vessel design pressure to graph; the curve to the right of the intersection of these values indicates the correct pressure relief valve selection.

NOTE : Where intersection point falls between curves - selection should always be made to the right of the point.

AREA FACTOR TABLE

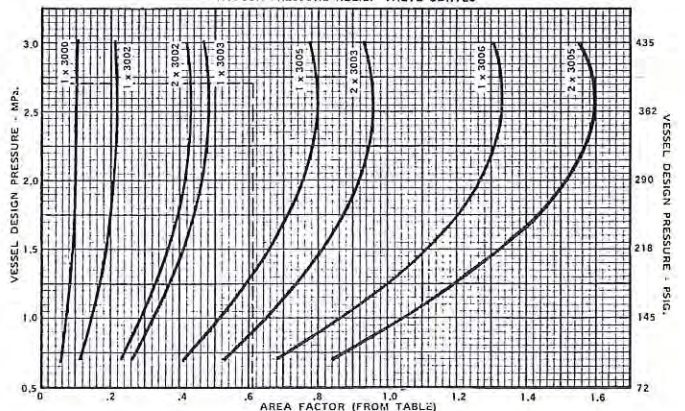
'D' OUTSIDE DIAMETER OF VESSEL - METRE

| | .102 | .120 | .152 | .203 | .273 | .324 | |
|------|------|--------|------|------|---------|---------|------|
| .25 | .14 | .16 | .14 | .27 | .36 | .43 | 10" |
| .40 | .20 | .23 | .21 | .37 | .48 | .57 | 16" |
| .45 | .22 | .25 | .24 | .40 | .53 | .62 | 18" |
| .59 | .27 | .31 | .30 | .49 | .64 | .75 | 23" |
| 1.01 | .41 | .47 | .50 | .73 | .95 | 1.10 | 40" |
| 1.14 | .45 | .51 | .57 | .80 | 1.04 | 1.21 | 45" |
| 1.22 | .47 | .54 | .61 | .85 | 1.10 | 1.27 | 48" |
| 1.52 | .56 | .65 | .75 | 1.01 | 1.30 | 1.51 | 60" |
| 1.83 | .65 | .75 | .90 | 1.17 | 1.50 | 1.74 | 72" |
| 1.93 | .68 | .78 | .94 | 1.22 | 1.56 | 1.81 | 76" |
| 2.14 | .74 | .85 | 1.04 | 1.32 | 1.70 | 2.66 | 84" |
| 2.44 | .83 | .94 | 1.19 | 1.47 | 1.88 | 2.86 | 96" |
| 2.74 | .91 | 1.04 | 1.33 | 1.61 | 2.06 | 3.06 | 108" |
| | 4" | 4-3/4" | 6" | 8" | 10-3/4" | 12-3/4" | |

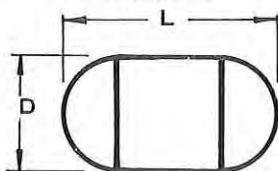
OUTSIDE DIAMETER - INCHES

NOTE: For R22 Refrigerant Area factor may be reduced by 20%

HUDSON PRESSURE RELIEF VALVE CURVES



EXAMPLE



VESSEL OUTSIDE DIAMETER 0.152m (6") D
 VESSEL OVERALL LENGTH 1.22m (48") L
 DESIGN PRESSURE OF VESSEL 2.7MPa (392 psig)
 FROM TABLE AREA FACTOR = .61

The intersection of these values falls between Model 3003 & 3005 curves, therefore Model 3005 pressure relief valve is required.

When ordering pressure relief valves quote Catalogue No., Model No. and pressure setting required, e.g. 3005/2.7.

Pressure selection should be guided by design pressure stamped on vessel information plate.

LIQUID & MOISTURE INDICATORS

DEFINITIONS

LIQUID AND MOISTURE INDICATORS - A combined Liquid Indicator (Sight Glass) and Moisture Indicator.

MOISTURE INDICATORS - A piece of equipment installed in the liquid line of a refrigeration system for the purpose of providing visual indication of the presence of moisture or water in the system. Basically it consists of a transparent port containing a substance reactive by change of colour to the presence and degree of moisture. The function of a moisture indicator is often combined with that of a conventional Liquid Indicator (Sight Glass).

LIQUID INDICATORS also known as **SIGHT GLASSES** - Defined as a fitting installed at those parts of a refrigeration system where it is desirable or essential to be able to check the presence or state of either refrigerant or oil. Depending on where it is installed, it can also be referred to as **INDICATORS, REFRIGERANT LEVEL INDICATORS** or **OIL GAUGE**. When fitted in the liquid line, refrigerant shortage is indicated by the presence of bubbles.

EYE-SPY MOISTURE-LIQUID INDICATOR (AMI SERIES)



| SIZE | SINGLE PORT | | | | | |
|--------|-------------------------|----------|---------------------------|----------|-------------------------|----------|
| | FLARE TYPE | | | | SOLDER TYPE | |
| | Male Flare x Male Flare | | Male Flare x Female Flare | | ODF Solder x ODF Solder | |
| | CAT. NO. | P/N | CAT. NO. | P/N | CAT. NO. | P/N |
| 1/4" | 21766 | AMI-1MM2 | 21773 | AMI-1FM2 | - | - |
| 3/8" | 21767 | AMI-1MM3 | 21774 | AMI-1FM3 | - | - |
| 1/2" | 21768 | AMI-1MM4 | 21775 | AMI-1FM4 | - | - |
| 5/8" | 21769 | AMI-1MM5 | - | - | - | - |
| 7/8" | - | - | - | - | 21771 | AMI-1SS7 |
| 1-1/8" | - | - | - | - | 21772 | AMI-1SS9 |

3

OPERATION AND APPLICATION

The Alco Eye-Spy Moisture-Liquid Indicator was designed to provide an accurate method of determining the moisture content of a refrigeration or air-conditioning system and to also indicate bubbles or flash gas in the system liquid line.

Distinct and accurately calibrated colours in the Eye-Spy indicator element and on the colour reference label indicate safe, caution and unsafe system operating conditions. Only one indicator element is required for all common refrigerants. The indicator element is highly sensitive to moisture and will gradually change colour in direct relation to an increase or decrease in the moisture content of the system. The safe, caution and unsafe system operating conditions are then easily determined by matching the element colour with the four colours displayed on the reference label. Refer Chart below.

This colour shift will take place as often as there is a change in the system moisture content.

The time required for a colour shift in the Eye-Spy indicator is dependent upon the individual installation. A minimum period of 12 hours is recommended after installation of the Eye-Spy before attempting to determine the system moisture content.

Eye-Spy's indicator element is chemically engineered for long life and reliability. It is more resistant to damage by free water or motor burnout contaminants than impregnated paper type indicators.

NOTE

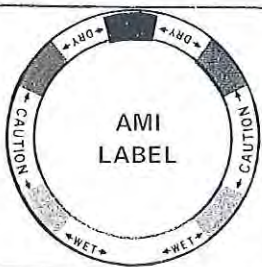
The indicator element will indicate an unsafe condition before installation of the Eye-Spy. This is normal and simply reflects the normal room humidity condition. The exclusive fused glass eyepiece in Eye-Spy provides a clear, wide angle view of the liquid refrigerant flow so that bubbles or flash gas are easily seen. This may indicate an insufficient liquid subcooling or some form of restriction in the liquid line.

INSTALLATION

1. The Eye-Spy Moisture-Liquid Indicator may be installed anywhere in the liquid line and in any position. Normally it is installed downstream of the Filter-Drier and immediately ahead of the Thermo expansion valve.
2. Eye-Spy indicators with ODF connections should be disassembled prior to being brazed into the line. The simplified construction and "O" ring seal make it very easy to remove and replace the indicator assembly.
3. The forged brass construction permits the use of any soft solder or commonly used brazing alloys. When soldering or brazing, direct flame away from the Eye-Spy body.
4. Replace the indicator assembly. **CAUTION** : Do not overtighten. This is an "O" ring seal and does not require excessive tightening.


MOISTURE CONTENT COLOR CODE

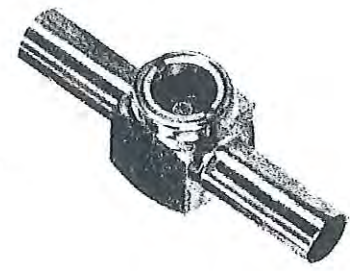
| LIQUID TEMP (DEG. F) | VERY DRY | | DRY TO CAUTION | | | CAUTION TO WET | | | VERY WET | | | |
|----------------------|---------------------------|-----|----------------|-----|-----|----------------|-----|-----|----------|-----|-----|-----|
| | R12 | R22 | R502 | R12 | R22 | R502 | R12 | R22 | R502 | R12 | R22 | |
| | PARTS PER MILLION - WATER | | | | | | | | | | | |
| 75 | 1.4 | 4 | 2.6 | 5 | 15 | 10 | 15 | 45 | 30 | 25 | 75 | 50 |
| 100 | 2.5 | 10 | 5 | 9 | 30 | 18 | 27 | 90 | 54 | 43 | 195 | 90 |
| 125 | 4 | 16 | 8 | 15 | 60 | 30 | 45 | 180 | 90 | 70 | 300 | 150 |





LIQUID & MOISTURE INDICATORS

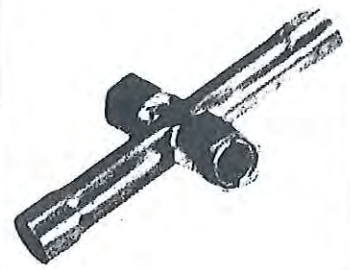
Heldon


|  | FLARE TYPE | | | | |
|---|------------|-------------------------|------|-------------------------|-----|
| | SIZE | SINGLE PORT | | DOUBLE PORT | |
| | | Male Flare x Male Flare | | Male Flare x Male Flare | |
| | | CAT. NO. | P/N | CAT. NO. | P/N |
| | 1/4" | 2171 | 7800 | — | — |
| 3/8" | 2172 | 7801 | — | — | |
| 1/2" | 2173 | 7802 | — | — | |
| 5/8" | 2174 | 7803 | 2176 | 7823 | |
| 3/4" | 2175 | 7804 | 2177 | 7824 | |

|  | SOLDER TYPE — SINGLE PORT | | |
|---|---------------------------|----------|------|
| | SIZE O.D. | CAT. NO. | P/N |
| | 1/4" | 21710 | 7810 |
| | 3/8" | 21711 | 7811 |
| | 1/2" | 21712 | 7812 |
| | 5/8" | 21713 | 7813 |
| | 3/4" | 21714 | 7814 |
| | 7/8" | 21715 | 7839 |
| | 1" | 21716 | 7840 |
| | 1-1/8" | 21717 | 7841 |
| | 1-1/4" | 21718 | 7842 |
| | 1-3/8" | 21719 | 7843 |
| | 1-1/2" | 21720 | 7844 |
| | 1-5/8" | 21721 | 7845 |
| | 2" | 21722 | 7846 |
| 2-1/8" | 21723 | 7847 | |

| DEMOUNTABLE TYPE WITH ADAPTOR TO SWEAT INTO LINE | | |
|---|----------|----------|
|  | | |
| SPIGGOT SIZE | CAT. NO. | PART No. |
| 7/8" | 21725 | 7850 |

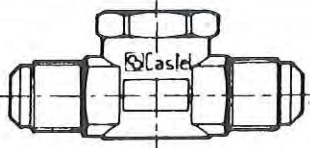
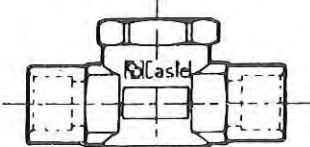
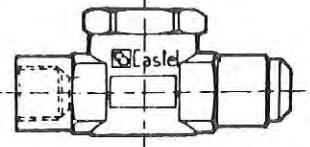
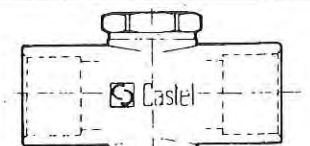
|  | SOLDER TYPE — SINGLE PORT BY-PASS INSTALLATION (in Pre-formed Tubes for By-pass Installation) | | |
|---|---|----------|------|
| | SIZE | CAT. NO. | P/N |
| | 3/8" | 21726 | 7860 |

|  | SOLDER TYPE — DOUBLE PORT | | |
|--|---------------------------|----------|------|
| | Solder x Solder | | |
| | SIZE | CAT. NO. | P/N |
| | 7/8" | 21730 | 7829 |
| | 1" | 21731 | 7830 |
| | 1-1/8" | 21732 | 7831 |
| | 1-1/4" | 21733 | 7832 |
| | 1-3/8" | 21734 | 7833 |
| | 1-1/2" | 21735 | 7834 |
| | 1-5/8" | 21736 | 7835 |
| | 2" | 21737 | 7836 |
| 2-1/8" | 21738 | 7837 | |

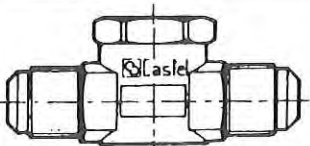
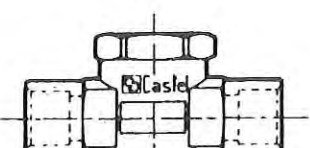
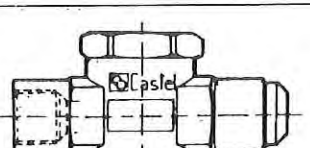
|  | GAS CONNECTION | | |
|--|----------------|----------|------|
| | MALE GAS | | |
| | SIZE | CAT. NO. | P/N |
| | 1/8" | 21742 | 7870 |
| | 1/4" | 21743 | 7871 |
| | 3/8" | 21744 | 7892 |
| | 1/2" | 21745 | 7873 |
| | 3/4" | 21746 | 7874 |
| | 1" | 21747 | 7875 |
| | 1-1/4" | 21748 | 7876 |
| 1-1/2" | 21749 | 7877 | |
| 2" | 21750 | 7878 | |

| MOISTURE CONTENT P P M | | | | | | | | | |
|------------------------|---------------------|--------------|--------------|---------------------|--------------|--------------|-----------------|--------------|--------------|
| LINE TEMP. | REFRIGERANT 11 & 12 | | | REFRIGERANT 22 & 40 | | | REFRIGERANT 500 | | |
| | 24°C (75°F) | 38°C (100°F) | 52°C (125°F) | 24°C (75°F) | 38°C (100°F) | 52°C (125°F) | 24°C (75°F) | 38°C (100°F) | 52°C (125°F) |
| Dry ● | BELOW | BELOW | BELOW | BELOW | BELOW | BELOW | BELOW | BELOW | BELOW |
| Green ● | 5 | 10 | 20 | 30 | 45 | 60 | 40 | 60 | 100 |
| Caution ● | ABOVE | ABOVE | ABOVE | ABOVE | ABOVE | ABOVE | ABOVE | ABOVE | ABOVE |
| Chartreuse ● | | | | | | | | | |
| Wet ● | | | | | | | | | |
| Yellow ● | 5 | 10 | 20 | 30 | 45 | 60 | 40 | 60 | 100 |

Castel LIQUID & MOISTURE INDICATORS

| | | | |
|---|--|-----------------|-----------------|
|  <p>Supplied with 2 Flare Nuts</p> | MALE FLARE TYPE – SINGLE PORT | | |
| | SIZE – FLARE | CAT. NO. | PART No. |
| | 1/4" | 217101 | 3710/22 |
| | 3/8" | 217102 | 3710/33 |
| | 1/2" | 217103 | 3710/44 |
| | 5/8" | 217104 | 3710/55 |
| | 3/4" | 217105 | 3710/66 |
|  | FEMALE SOLDER TYPE – SINGLE PORT | | |
| | SIZE – O.D. TUBE | CAT. NO. | PART No. |
| | 1/4" | 217126 | 3720/2 |
| | 3/8" | 217127 | 3720/3 |
| | 1/2" | 217128 | 3720/4 |
| | 5/8" | 217129 | 3720/5 |
| | 3/4" | 217130 | 3720/6 |
| | 7/8" | 217131 | 3720/7 |
| | 1-1/8" | 217132 | 3720/9 |
|  <p>Supplied with 1 Flare Nut</p> | FEMALE TO MALE FLARE TYPE – SINGLE PORT | | |
| | SIZE – FLARE | CAT. NO. | PART No. |
| | 1/4" | 217110 | 3750/22 |
| | 3/8" | 217111 | 3750/33 |
| | 1/2" | 217112 | 3750/44 |
| | 5/8" | 217113 | 3750/55 |
| | 3/4" | | 3750/66 |
|  | FEMALE SOLDER TYPE – DOUBLE PORT | | |
| | SIZE – O.D. TUBE | CAT. NO. | PART No. |
| | 1-1/8" | 217123 | 3730/9 |
| | 1-3/8" | 217124 | 3730/11 |
| | 1-5/8" | 217125 | 3730/13 |


Castel LIQUID INDICATORS - SIGHT GLASSES

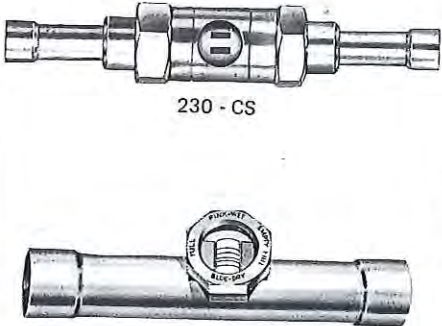
| | | | |
|---|----------------------------------|-----------------|-----------------|
|  <p>Supplied with 2 Flare Nuts</p> | MALE FLARE TYPE | | |
| | SIZE – FLARE | CAT. NO. | PART No. |
| | 1/4" | 217115 | 3610/22 |
| | 3/8" | 217116 | 3610/33 |
| | 1/2" | 217117 | 3610/44 |
| | 5/8" | 217118 | 3610/55 |
| | 3/4" | 217119 | 3610/66 |
|  | FEMALE SOLDER TYPE | | |
| | SIZE – O.D. TUBE | CAT. NO. | PART No. |
| | 1/4" | 217133 | 3620/2 |
| | 3/8" | 217134 | 3620/3 |
| | 1/2" | 217135 | 3620/4 |
| | 5/8" | 217136 | 3620/5 |
| | 3/4" | 217137 | 3620/6 |
| | 7/8" | 217138 | 3620/7 |
| | 1-1/8" | 217139 | 3620/9 |
|  <p>Supplied with 1 Flare Nut</p> | FEMALE TO MALE FLARE TYPE | | |
| | SIZE – FLARE | CAT. NO. | PART No. |
| | 1/4" | 217146 | 3650/22 |
| | 3/8" | 217147 | 3650/33 |
| | 1/2" | 217148 | 3650/44 |
| | 5/8" | 217149 | 3650/55 |
| | 3/4" | 217150 | 3650/66 |

Working Pressure (S.W.P.): 3450 kPa (500 psig)

Note: Flare Nuts, where applicable, are supplied separately and not mounted on the Indicators.

LIQUID & MOISTURE INDICATORS IMPERIAL

|  | MALE FLARE TYPE - SINGLE PORT | | |
|---|-------------------------------|----------|--------------|
| | SIZE - FLARE | CAT. NO. | PART No. |
| | 1/4" | 21751 | 230 - C - 04 |
| | 3/8" | 21752 | 230 - C - 06 |
| | 1/2" | 21753 | 230 - C - 08 |
| | 5/8" | 21754 | 230 - C - 10 |

|  230 - CS 475 - CS | FEMALE SOLDER TYPE - SINGLE PORT | | |
|---|----------------------------------|----------|---------------|
| | SIZE - O.D. TUBE | CAT. NO. | PART No. |
| | 1/4" | 21755 | 230 - CS - 04 |
| | 3/8" | 21756 | 230 - CS - 06 |
| | 1/2" | 21757 | 230 - CS - 08 |
| | 5/8" | 21758 | 230 - CS - 10 |
| | 3/4" | 21759 | 475 - CS - 12 |
| | 7/8" | 21760 | 475 - CS - 14 |
| | 1-1/8" | 21761 | 475 - CS - 18 |
| | 1-3/8" | 21762 | 475 - CS - 22 |
| | 1-5/8" | 21763 | 475 - CS - 26 |
| | 2-1/8" | 21764 | 475 - CS - 34 |

IMPERIAL TYPES 230-C — 230-CS

Color Coded DUBL-CHEK® Liquid and Moisture Indicators.
Sensing element tells at a glance if there is moisture in the refrigeration system—also shows whether the system is fully charged.

| Refrigerant | Liquid Line Temperature | Moisture Content in PPM | | |
|-------------|-------------------------|-------------------------|----------------------|--------------|
| | | Green (Dry) | Chartreuse (caution) | Yellow (wet) |
| R12 | 75 | Below 5 | 5 to 15 | Above 15 |
| | 100 | Below 10 | 10 to 30 | Above 30 |
| | 125 | Below 20 | 20 to 50 | Above 50 |
| R502 | 75 | Below 10 | 10 to 45 | Above 45 |
| | 100 | Below 20 | 20 to 65 | Above 65 |
| | 125 | Below 30 | 30 to 110 | Above 110 |
| R22 | 75 | Below 30 | 30 to 90 | Above 90 |
| | 100 | Below 45 | 45 to 130 | Above 130 |
| | 125 | Below 60 | 60 to 180 | Above 180 |

IMPERIAL TYPE 475 - CS

Color Coded Liquid and Moisture Indicator

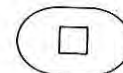
Color coding appears blue when dry, pink when moisture is present. The word "FULL" appears plainly in black letters on a white background when the system is fully charged. "FULL" disappears when refrigerant is low.

Special "O" ring seals glass to body to assure leak proof performance.

Furnished with snap-in plastic cap to protect indicator.

Pat. No. 2,811,128; Pat. Can. 1959.

**SENSING ELEMENT
IN SIGHT GLASS
APPEARS:**



FULL
Clear view
of refrigerant.



LOW
Red lines appear
in sight glass.



**MOISTURE
PRESENT**
Right 1/3 appears
yellow.



DRY
Sensing element
all green.

In determining the approximate liquid line temperature, refer to human body temperature. Put your hand on the line and if it feels cool, use 75°F; if it is body temperature, use 100°F; if it feels hot, use 125°F.



FULL
System is
fully charged



EMPTY
System needs
charging

LIQUID & MOISTURE INDICATORS


Danfoss TYPE SGI


Refrigerants

R 12, R 22, R502

Maximum permissible temperature

+60°C (+140°F)

|  | MALE FLARE TYPE – SINGLE PORT | | | |
|---|-------------------------------|----------|----------|-----------|
| | SIZE – FLARE | CAT. NO. | TYPE | CODE NO. |
| | 1/4" | 21825 | SGI - 6 | 14 - 0012 |
| | 3/8" | 21826 | SGI - 10 | 14 - 0016 |
| | 1/2" | 21827 | SGI - 12 | 14 - 0020 |

|  | SOLDER TYPE – SINGLE PORT | | | |
|---|---------------------------|----------|-----------|-----------|
| | SIZE – O.D. TUBE | CAT. NO. | TYPE | CODE NO. |
| | 1/4" | 21831 | SGI - 6S | 14 - 0034 |
| | 3/8" | 21832 | SGI - 10S | 14 - 0035 |
| | 1/2" | 21830 | SGI - 12S | 14 - 0036 |
| | 5/8" | 21828 | SGI - 15S | 14 - 0037 |
| | 7/8" | 21833 | SGI - 22S | 14 - 0039 |

All the SGI types are made of hot brass stamping. However, the solder design has copper solder connections. The designs aim at dimensions resulting in a large visual diameter and, at the same time, a minimum pressure drop across the sight glass. SGI is available with straightway connections for flare and solder.

SGI has flats for keeping counter with a spanner during fitting of the flare design. All connections are blanked off when delivered. The glass is fixed in the housing by beading. The teflon seal under the glass ensures the tightness of the joint.

SGR can be obtained with parallel thread or external taper pipe thread.

The *moisture indicator* (1) in SGI consists of a chemical salt, the colour of which changes according to the moisture content of the refrigerant flow. The colour change is reversible, which means that it is affected both by increases and decreases in the moisture content.

The table below shows the indicator colour with different moisture contents. The values apply to liquid temperatures of from approx. +20°C to approx. +40°C (+70°F to +105°F).

| Refrigerant | Moisture content PPM* mg H ₂ O/kg refrigerant | | |
|-------------|---|-------------------|--------------------|
| | green-dry max. | neutral colour | yellow-wet min. |
| R 12 | 15 | 15-35 | 35 |
| R 22 | 60 | 16-125 | 125 |
| R 502 | 30 | 30-65 | 65 |

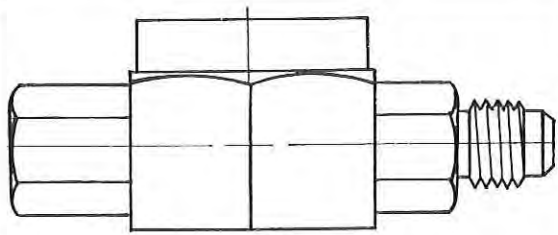
* PPM = parts per million (1/1000 000)

The values indicated under "green-dry" are considered as maximum permissible values to ensure full protection against harmful effects of the moisture content.

When the green colour begins to fade, the colour change has started, and the indicator must be closely watched.

If the colour changes to yellow, the filter drier must be replaced.

VIRGINIA DRY-EYE MOISTURE INDICATORS – for Liquid Line Moisture Detection

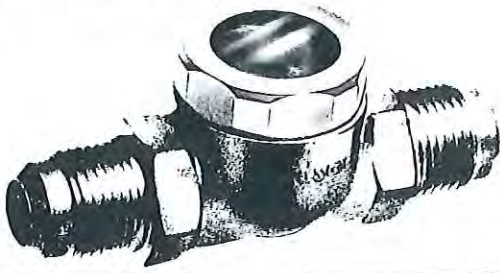
|  | MALE FLARE TO FEMALE FLARE – SINGLE PORT | | |
|---|--|----------|----------|
| | SIZE – FLARE | CAT. NO. | TYPE NO. |
| | 1/4" | 21839 | LDE 2MF |
| | 3/8" | 21840 | LDE 3MF |
| | 1/2" | 21841 | LDE 3MF |
| | 5/8" | 21842 | LDE 5MF |

Virginia Dry-Eye Universal Element Moisture Indicators show at a glance whether a refrigeration or air conditioning system is safely dry or dangerously wet. The indicating element in the centre of the large optically clear sight glass shows blue when dry and pink when wet. The colours are reversible and will change either blue or pink depending on the system condition. The sight glass permits easy viewing of bubbles which may

indicate pressure drop or a low charge in the system. The indicator body is copperplated steel and all non-flare surfaces are coated with a 500 hour Salt Spray paint finish. The glass is fused into the body with the glass surface flush with the top of the body to provide a smooth cleanable surface. A cap is provided to prevent dirt accumulation on the glass. Dimensions conform to ARI Standard 725P.

Liquid and Moisture Indicators

Temperature range — 40 to 160°C tested to 2.79 MPa



| CONNECTION SIZE | CAT. NO. | PART No. | OVERALL LENGTH |
|---|----------|----------|----------------|
| MALE FLARE — SINGLE PORT WITH DUST COVER | | | |
| 1/4" | 21870 | 3430 | 72 mm |
| 3/8" | 21871 | 3431 | 78 mm |
| 1/2" | 21872 | 3432 | 84 mm |
| 5/8" | 21873 | 3433 | 90 mm |
| 3/4" | 21874 | 3434 | 96 mm |
| MALE TO FEMALE FLARE — SINGLE PORT WITH DUST COVER | | | |
| 1/4" | 21875 | 3450 | 72 mm |
| 3/8" | 21876 | 3451 | 78 mm |
| 1/2" | 21877 | 3452 | 84 mm |

| CONNECTION SIZE | CAT. NO. | PART No. | OVERALL LENGTH |
|--|----------|----------|----------------|
| FEMALE SOLDER — SINGLE PORT WITH DUST COVER | | | |
| 1/4" | 21878 | 3440 | 52 mm |
| 3/8" | 21879 | 3441 | 56 mm |
| 1/2" | 21880 | 3442 | 57 mm |
| 5/8" | 21881 | 3443 | 55 mm |
| 3/4" | 21882 | 3444 | 56 mm |
| 7/8" | 21883 | 3445 | 87 mm |
| 1-1/8" | 21884 | 3446 | 104 mm |
| FEMALE SOLDER — DOUBLE PORT WITH DUST COVER | | | |
| 7/8" | 21885 | 3465 | 87 mm |
| 1-1/8" | 21886 | 3466 | 104 mm |
| 1-3/8" | 21887 | 3467 | 126 mm |
| 1-5/8" | 21888 | 3468 | 145 mm |
| 2-1/8" | 21889 | 3469 | 157 mm |

Liquid Indicators

Temperature range — 40 to 160°C tested to 2.79 MPa

| MALE FLARE — SINGLE PORT WITH DUST COVER | | | |
|---|----------|----------|----------------|
| CONNECTION SIZE | CAT. NO. | PART No. | OVERALL LENGTH |
| 1/4" | 21890 | 3400 | 72 mm |
| 3/8" | 21891 | 3401 | 78 mm |
| 1/2" | 21892 | 3402 | 84 mm |
| 5/8" | 21893 | 3403 | 90 mm |
| 3/4" | 21894 | 3404 | 96 mm |

| FEMALE SOLDER — SINGLE PORT WITH DUST COVER | | | | |
|--|----------|----------|----------------|----------------|
| CONN. SIZE | CAT. NO. | PART No. | OVERALL LENGTH | CUT OUT LENGTH |
| 1/4" | 21895 | 3410 | 68 mm | 52 mm |
| 3/8" | 21896 | 3411 | 72 mm | 56 mm |
| 1/2" | 21897 | 3412 | 76 mm | 57 mm |
| 5/8" | 21898 | 3413 | 81 mm | 55 mm |
| 3/4" | 21899 | 3414 | 87 mm | 56 mm |
| 7/8" | 218100 | 3415 | 125 mm | 87 mm |
| 1-1/8" | 218101 | 3416 | 150 mm | 104 mm |

OIL LEVEL SIGHT GLASS — STEEL MALE BSP PARALLEL

| CONNECTION SIZE | CAT. NO. | PART No. |
|-----------------|----------|----------|
| 3/4" | 218102 | 3481 |

LIQUID RECEIVER INDICATOR — STEEL MALE BSP TAPER

| CONNECTION SIZE | CAT. NO. | PART No. |
|-----------------|----------|----------|
| 1/2" | 218103 | 3490 |
| 3/4" | 218104 | 3491 |
| 1" | 218105 | 3492 |

Choice 1/2"
 218104 H
 218104 A
 3763 B
 NEW CAT NO 21917

| REPLACEMENT PARTS | | |
|-------------------|----------|-----------------------------|
| CAT. NO. | PART No. | DESCRIPTION |
| 218106 | 3400/3 | Indicating Element Assembly |
| 218107 | 3400/6 | "O" Ring |
| 218108 | 3400/5 | Dust Cover |

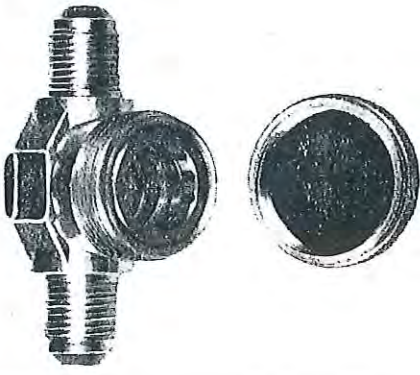

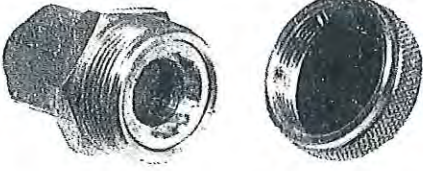
MOISTURE - COLOUR INDICATION IN PPM AT LIQUID LINE SPECIFIC TEMPERATURES

| System Refrigerant | R12 | | R22 | | R502 | | |
|-----------------------------------|------|----------|----------|-----------|-----------|----------|-----------|
| | 24°C | 52°C | 24°C | 52°C | 24°C | 52°C | |
| Liquid Line Temperature | | | | | | | |
| System Condition-Indicator Colour | | | | | | | |
| DRY | BLUE | Below 5 | Below 15 | Below 30 | Below 60 | Below 10 | Below 30 |
| CAUTION | GREY | 5 - 15 | 15 - 50 | 30 - 110 | 60 - 220 | 10 - 50 | 30 - 120 |
| WET | PINK | Above 15 | Above 50 | Above 110 | Above 220 | Above 50 | Above 120 |

Immediate steps should be taken to protect the system when the moisture indicating element shows "Wet". Good system protection may be obtained by use of a Hudson Filter Drier and Suction Line Filter Drier. The sight glass moisture indicator should normally be installed between a Hudson Ceramic Filter Core Drier and a refrigerant control device.

LIQUID INDICATORS - SIGHT GLASSES

Heldon

|  | SIGHT GLASS - FLARE TYPE - CAPPED | | |
|--|---|-------------|-------------|
| | SIZE - FLARE | CAT. NO. | PART No. |
| | 1/4" | 2191 | 3700 |
| | 5/16" | 2192 | 3705 |
| | 3/8" | 2193 | 3701 |
| | 1/2" | 2194 | 3702 |
| | 5/8" | 2195 | 3703 |
| 3/4" | 2196 | 3704 | |
|  | SIGHT GLASS - SOLDER TYPE - COPPER EXTENSIONS | | |
| | SIZE - O.D. TUBE | CAT. NO. | PART No. |
| | 1/4" | 21912 | 3750 |
| | 3/8" | 21913 | 3751 |
| | 1/2" | 21914 | 3752 |
| | 5/8" | 21915 | 3753 |
| 3/4" | 21916 | 3754 | |
|  | SIGHT GLASS - WITH GAS BOTTOM CONNECTION | | |
| | SIZE BSP or NPT | CAT. NO. | PART No. |
| | 1/4" | 2197 | 3760 |
| | 3/8" | 2198 | 3761 |
| | 1/2" | 2199 | 3762 |
| | 3/4" | 21910 | 3763 |
| - With adaptor to sweat into line | 21911 | 3764 | |

3

LIQUID LEVEL GAUGES



HENRY LIQUID LEVEL GAUGES - Recommended for use on accumulators, liquid receivers, oil reservoirs, or similar vessels where it is important to keep an accurate liquid level check.

TYPE 502
Gauge Set. Seal cap type. Female pipe thread connections. For all refrigerants, including Ammonia (R717).

Type 502 liquid level gauge valves contain a safety ball check to prevent excessive loss of refrigerant in case the gauge glass is broken while the system is pressurized and the gauge valves are in the open position. High pressure glass tubing protected by metal guard.

ORDERING INFORMATION:

Gauge sets with standard 15" mounting centers will be furnished unless special glass lengths are required. For special lengths orders must specify exact glass lengths required or mounting centers of Gauge Set. Specify whether dimension is exact Glass or Guard Length or mounting centers of Gauge Set.

Recommended maximum working pressures for glass lengths.

- 1" to 20" 2896kPa (420 PSI)
- 21" to 30" 2344kPa (340 PSI)
- 31" to 40" 2000kPa (290 PSI)

For mounting centers greater than 40" it is recommended that multiple gauge sets be used. Max. temp. rating 66°C (150°F).

PACKED TYPE - CAPPED - FORGED STEEL GAUGE SET -
Plated Finish - complete with glass and slotted steel guard.

| CAT. NO. | TYPE | SIZE CONNECTIONS | DIMENSIONS - INCHES | | | WEIGHT POUNDS |
|----------|------------|------------------|---------------------|------------------|---------|---------------|
| | | | SIZE GLASS | MOUNTING CENTERS | | |
| | | | | STANDARD | MINIMUM | |
| 21939 | 5024 (set) | 1/2" FPT | 1/2 x 13-3/8 | 15 | 6-1/8 | 2-1/4 |

WE BELIEVE IN CONTINUALLY STUDYING THE LOCAL AND INTERNATIONAL MARKETS TO MAKE AVAILABLE THE MOST MODERN TYPE OF EQUIPMENT



YK STOP, EXPANSION & CHECK VALVES

CATALOGUE NUMBER SUMMARY PAGE - FOR ORDERING PURPOSES

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
|----------|------------|------------|------------|

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
|----------|------------|------------|------------|

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
|----------|------------|------------|------------|

STOP VALVES

AMMONIA

R12-R22-R502

EXPANSION VALVES

AMMONIA

STRAIGHT GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 2211 | YKA 11111 | 1/4-3/8-1/2 | W.FI. |
| 2212 | " | 3/4 | " |
| 2213 | " | 1 | " |
| 2214 | " | 1-1/4 | " |
| 2215 | " | 1-1/2 | " |
| 2216 | " | 2 | " |
| 2217 | " | 2-1/2 | " |
| 2218 | " | 3 | " |
| 2219 | " | 3-1/2 | " |
| 2219 | " | 4 | " |
| 22110 | " | 5 | " |
| 22111 | " | 6 | " |
| 22112 | " | 8 | " |
| 22173 | YKA 11121 | 1/4-3/8-1/2 | W.FI. |
| 22159 | YKA 11113 | 1/4-3/8-1/2 | S.V. |
| 22160 | " | 3/4 | " |
| 22161 | " | 1 | " |
| 22162 | " | 1-1/4 | " |
| 22163 | " | 1-1/2 | " |
| 22171 | YKA 11123 | 1/4-3/8-1/2 | S.V. |

STRAIGHT GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 22113 | YKF 11111 | 1/4-3/8-1/2 | W.FI. |
| 22114 | " | 3/4 | " |
| 22115 | " | 1 | " |
| 22116 | " | 1-1/4 | " |
| 22117 | " | 1-1/2 | " |
| 22118 | " | 2 | " |
| 22119 | " | 2-1/2 | " |
| 22120 | " | 3 | " |
| 22121 | " | 3-1/2 | " |
| 22121 | " | 4 | " |
| 22122 | " | 5 | " |
| 22123 | " | 6 | " |
| 22124 | " | 8 | " |
| 22174 | YKF 11121 | 1/4-3/8-1/2 | W.FI. |
| 22164 | YKF 11113 | 1/4-3/8-1/2 | S.V. |
| 22165 | " | 3/4 | " |
| 22166 | " | 1 | " |
| 22167 | " | 1-1/4 | " |
| 22168 | " | 1-1/2 | " |
| 22172 | YKF 11123 | 1/4-3/8-1/2 | S.V. |

STRAIGHT GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 221255 | YKA 11211 | 1/4-3/8-1/2 | W.FI. |
| 221256 | " | 3/4 | " |
| 221257 | " | 1 | " |
| 221258 | " | 1-1/4 | " |
| 221259 | " | 1-1/2 | " |
| 221260 | " | 2 | " |
| 22181 | YKA 11221 | 1/2 | W.FI. |
| 221237 | YKA 11213 | 1/4-3/8-1/2 | S.V. |
| 221238 | " | 3/4 | " |
| 221239 | " | 1 | " |
| 221240 | " | 1-1/4 | " |
| 221241 | " | 1-1/2 | " |
| 221242 | " | 2 | " |
| 22179 | YKA 11223 | 1/2 | S.V. |

RIGHT ANGLE GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 221249 | YKA 21211 | 1/4-3/8-1/2 | W.FI. |
| 221250 | " | 3/4 | " |
| 221251 | " | 1 | " |
| 221252 | " | 1-1/4 | " |
| 221253 | " | 1-1/2 | " |
| 221254 | " | 2 | " |
| 22169 | YKA 21221 | 1/4-3/8-1/2 | W.FI. |
| 22183 | " | 1/2 | " |

RIGHT ANGLE GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 22125 | YKA 21111 | 1/4-3/8-1/2 | W.FI. |
| 22126 | " | 3/4 | " |
| 22127 | " | 1 | " |
| 22128 | " | 1-1/4 | " |
| 22129 | " | 1-1/2 | " |
| 22130 | " | 2 | " |
| 22131 | " | 2-1/2 | " |
| 22132 | " | 3 | " |
| 22133 | " | 3-1/2 | " |
| 22133 | " | 4 | " |
| 22134 | " | 5 | " |
| 22135 | " | 6 | " |
| 22175 | YKA 21121 | 1/2 | W.FI. |
| 22147 | YKA 21113 | 1/4-3/8-1/2 | S.V. |
| 22148 | " | 3/4 | " |
| 22151 | " | 1 | " |
| 22152 | " | 1-1/4 | " |
| 22153 | " | 1-1/2 | " |
| 22177 | YKA 21123 | 1/2 | S.V. |

RIGHT ANGLE GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 22136 | YKF 21111 | 1/4-3/8-1/2 | W.FI. |
| 22137 | " | 3/4 | " |
| 22138 | " | 1 | " |
| 22139 | " | 1-1/4 | " |
| 22140 | " | 1-1/2 | " |
| 22141 | " | 2 | " |
| 22142 | " | 2-1/2 | " |
| 22143 | " | 3 | " |
| 22144 | " | 3-1/2 | " |
| 22144 | " | 4 | " |
| 22145 | " | 5 | " |
| 22146 | " | 6 | " |
| 22176 | YKF 21121 | 1/2 | W.FI. |
| 22154 | YKF 21113 | 1/4-3/8-1/2 | S.V. |
| 22155 | " | 3/4 | " |
| 22156 | " | 1 | " |
| 22157 | " | 1-1/4 | " |
| 22158 | " | 1-1/2 | " |
| 22178 | YKF 21123 | 1/2 | S.V. |

RIGHT ANGLE BALL

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 221123 | YKA 22203 | 1/4x1/4 | S.V. |
| 221124 | " | 3/8x1/4 | " |
| 221125 | " | 1/2x1/4 | " |
| 221126 | " | 3/8 | " |
| 221127 | " | 1/2 | " |
| 221128 | " | 3/4 | " |
| 221129 | " | 1 | " |
| 221130 | " | 1-1/4 | " |

R12-R22-R502

STRAIGHT GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 221261 | YKF 11211 | 1/4-3/8-1/2 | W.FI. |
| 221262 | " | 3/4 | " |
| 221263 | " | 1 | " |
| 221264 | " | 1-1/4 | " |
| 221265 | " | 1-1/2 | " |
| 221266 | " | 2 | " |
| 22182 | YKF 11221 | 1/2 | W.FI. |
| 221243 | YKF 11213 | 1/4-3/8-1/2 | S.V. |
| 221244 | " | 3/4 | " |
| 221245 | " | 1 | " |
| 221246 | " | 1-1/4 | " |
| 221247 | " | 1-1/2 | " |
| 221248 | " | 2 | " |
| 22180 | YKF 11223 | 1/2 | S.V. |

RIGHT ANGLE BALL

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 221108 | YKA 22103 | 1/4x1/4 | S.V. |
| 221109 | " | 3/8x1/4 | " |
| 221110 | " | 1/2x1/4 | " |
| 221111 | " | 3/8 | " |
| 221112 | " | 1/2 | " |
| 221113 | " | 3/4 | " |
| 221114 | " | 1 | " |
| 221115 | " | 1-1/4 | " |

RIGHT ANGLE BALL

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 221116 | YKF 22103 | 1/4x1/4 | S.V. |
| 221117 | " | 3/8x1/4 | " |
| 221118 | " | 1/2x1/4 | " |
| 221119 | " | 3/8 | " |
| 221120 | " | 1/2 | " |
| 221121 | " | 3/4 | " |
| 221122 | " | 1 | " |
| - | " | 1-1/4 | " |

PISTON CHECK VALVES

AMMONIA - R12-R22-R502

STRAIGHT PATTERN

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 22197 | YKAF 11611 | 1/2 | W.FI. |
| 22198 | " | 3/4 | " |
| 22199 | " | 1 | " |
| 221100 | " | 1-1/4 | " |
| 221101 | " | 1-1/2 | " |
| 221102 | " | 2 | " |

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 221103 | YKAF 11611 | 2-1/2 | W.FI. |
| 221104 | " | 3 | " |
| 221105 | " | 3-1/2 | " |
| 221105 | " | 4 | " |
| 221106 | " | 5 | " |
| 221107 | " | 6 | " |

RIGHT ANGLE GLOBE

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|-------------|------------|
| 22170 | YKF 21221 | 1/4-3/8-1/2 | W.FI. |
| 22184 | " | 1/2 | " |

RIGHT ANGLE BALL

| CAT. NO. | VALVE TYPE | SIZE (INS) | TYPE CONN. |
|----------|------------|------------|------------|
| 221131 | YKF 22203 | 1/4x1/4 | S.V. |
| 221132 | " | 3/8x1/4 | " |
| 221133 | " | 1/2-1/4 | " |
| 221134 | " | 3/8 | " |
| 221135 | " | 1/2 | " |
| 221136 | " | 3/4 | " |
| 221137 | " | 1 | " |
| 221138 | " | 1-1/4 | " |

SEE NEXT PAGE FOR CONTINUATION

SOLENOID VALVES - RELIEF VALVES - DUAL STOP VALVES - CHLORINE STOP VALVES - FLANGES
STRAINERS - CHARGING / PRESSURE GAUGE / AIR PURGE VALVES - LIQUID LEVEL GAUGES



CATALOGUE NUMBER SUMMARY PAGE - FOR ORDERING PURPOSES

| CAT. NO. | TYPE | SIZE (INS.) | TYPE CONN. |
|----------|------|-------------|------------|
|----------|------|-------------|------------|

RELIEF VALVES

RIGHT ANGLE BALL

| | | | |
|--------|-----------|-----|------|
| 221184 | YKAF22403 | 1/2 | S.V. |
| 221185 | " | 3/4 | " |

RIGHT ANGLE GLOBE

| | | | |
|--------|-----------|-------|--------|
| 221192 | YKAF21411 | 1/2 | W. FI. |
| 221193 | " | 3/4 | " |
| 221194 | " | 1 | " |
| 221195 | " | 1.1/4 | " |
| 221196 | " | 1.1/2 | " |
| 221197 | " | 2 | " |

STRAIGHT GLOBE

| | | | |
|--------|-----------|-------|--------|
| 221186 | YKAF11411 | 1/2 | W. FI. |
| 221187 | " | 3/4 | " |
| 221188 | " | 1 | " |
| 221189 | " | 1.1/4 | " |
| 221190 | " | 1.1/2 | " |
| 221191 | " | 2 | " |

DUAL STOP VALVES

COMPLETE WITH RELIEF VALVES

| | | | |
|--------|-----------|-------|--|
| 221198 | YKA16128 | 3/4 | |
| 221199 | YKAF16129 | 3/4 | |
| 221200 | YKAF16130 | 1 | |
| 221201 | YKAF16111 | 1.1/2 | |
| 221202 | YKAF16118 | 1.1/2 | |

BURSTING DISCS

| | | | |
|--------|------------------------|------|--|
| 221203 | AMMONIA R12, R22, R502 | 3/4" | |
|--------|------------------------|------|--|

CHLORINE STOP VALVES

WITH BELLOW SEAL

| | | | |
|--------|----------|-------|--------|
| 221267 | YKC11111 | 1/2 | W. FI. |
| 221268 | " | 3/4 | " |
| 221269 | " | 1 | " |
| 221270 | " | 1.1/4 | " |
| 221271 | " | 1.1/2 | " |
| 221272 | " | 2 | " |
| 221273 | " | 3 | " |
| 221274 | " | 4 | " |

WITHOUT BELLOW SEAL

| | | | |
|--------|------------|-------|--------|
| 221275 | YKC11111-A | 1/2 | W. FI. |
| 221276 | " | 3/4 | " |
| 221277 | " | 1 | " |
| 221278 | " | 1.1/4 | " |
| 221279 | " | 1.1/2 | " |
| 221280 | " | 2 | " |
| 221281 | " | 3 | " |
| 221282 | " | 4 | " |

1/2" LIQUID LEVEL GAUGE

| | | |
|--------|----------|-------------|
| 221233 | YKA27500 | Valves only |
| 221234 | YKA27504 | Complete |
| 221235 | YKF27500 | Valves only |
| 221236 | YKF27504 | Complete |

| CAT. NO. | TYPE | SIZE (INS.) | TYPE CONN. |
|----------|------|-------------|------------|
|----------|------|-------------|------------|

SOLENOID VALVES

SOLENOID VALVE ONLY

| | | | |
|--------|-----------|-----------|--|
| 221139 | YKAF13001 | 1/4 x 1/2 | |
| 221140 | " | 3/4 | |
| 221141 | " | 1 | |
| 221142 | " | 1.1/4 | |
| 221143 | " | 1.1/2 | |
| 221144 | " | 2 | |
| 221145 | " | 2.1/2 | |

SOLENOID + STRAINER

| | | | |
|--------|-----------|-------|--|
| 221146 | YKAF13005 | 1/2 | |
| 221147 | " | 3/4 | |
| 221148 | " | 1 | |
| 221149 | " | 1.1/4 | |
| 221150 | " | 1.1/2 | |
| 221151 | " | 2 | |
| 221152 | " | 2.1/2 | |

STOP - STRAINER - SOLENOID

| | | | |
|--------|----------|-------|--|
| 221153 | YKA13008 | 1/2 | |
| 221154 | " | 3/4 | |
| 221155 | " | 1 | |
| 221156 | " | 1.1/4 | |
| 221157 | " | 1.1/2 | |
| 221158 | " | 2 | |
| 221159 | " | 2.1/2 | |
| 221160 | YKF13008 | 1/2 | |
| 221161 | " | 3/4 | |
| 221162 | " | 1 | |
| 221163 | " | 1.1/4 | |
| 221164 | " | 1.1/2 | |
| 221165 | " | 2 | |
| 221166 | " | 2.1/2 | |

STOP-STRAINER-SOLENOID-STOP

| | | | |
|--------|-----------|-------|--|
| 221167 | YKA13006 | 1/2 | |
| 221168 | " | 3/4 | |
| 221169 | " | 1 | |
| 221170 | " | 1.1/4 | |
| 221171 | " | 1.1/2 | |
| 221172 | " | 2 | |
| 221173 | " | 2.1/2 | |
| 221174 | YKF13006 | 1/2 | |
| 221175 | " | 3/4 | |
| 221176 | " | 1 | |
| 221177 | " | 1.1/4 | |
| 221178 | " | 1.1/2 | |
| 221179 | " | 2 | |
| 221180 | " | 2.1/2 | |
| 221425 | YKAF13006 | 1/2 | |
| 221426 | " | 3/4 | |
| 221427 | " | 1 | |
| 221428 | " | 1.1/4 | |
| 221429 | " | 1.1/2 | |
| 221430 | " | 2 | |
| 221431 | " | 2.1/2 | |

SOLENOID COILS

| | | |
|--------|-------|---------|
| 221181 | A1 | 240V |
| 221182 | M3-A | 50Hz AC |
| 221277 | M3-AS | 50Hz AC |
| 221183 | M10 | |

| CAT. NO. | TYPE | SIZE (INS.) | TYPE CONN. |
|----------|------|-------------|------------|
|----------|------|-------------|------------|

FLANGES
WELD FLANGES

| | | | |
|--------|-----------|-------------|--|
| 221432 | YKAF10011 | 1/4-3/8-1/2 | |
| 221433 | " | 1/2 | |
| 221434 | " | 3/4 | |
| 221435 | " | 1 | |
| 221436 | " | 1.1/4 | |
| 221437 | " | 1.1/2 | |
| 221438 | " | 2 | |
| 221439 | " | 2.1/2 | |
| 221440 | " | 3 | |
| 221441 | " | 4 | |
| 221442 | " | 5 | |
| 221443 | " | 6 | |
| 221444 | " | 8 | |

SCREWED FLANGES

| | | | |
|--------|-----------|-------------|--|
| 221204 | YKAF10012 | 1/4-3/8-1/2 | |
| 221205 | " | 3/4 | |
| 221206 | " | 1 | |
| 221207 | " | 1.1/4 | |
| 221208 | " | 1.1/2 | |
| 221209 | " | 2 | |
| 221210 | " | 2.1/2 | |
| 221211 | " | 3 | |
| 221212 | " | 3 1/2 to 4 | |
| 221213 | " | 5 | |
| 221214 | " | 6 | |
| 221215 | " | 8 | |

ADAPTOR FLANGES
MS. COPPER PLATED for SOLDER CONN.

| | | | |
|--------|--|-------------|--|
| 221216 | | 1/4-3/8-1/2 | |
| 221217 | | 3/4 | |
| 221218 | | 1 | |
| 221219 | | 1.1/4 | |
| 221220 | | 1.1/2 | |
| 221221 | | 2 | |
| 221222 | | 2.1/2 | |
| 221223 | | 3 | |
| 221224 | | 3 1/2 to 4 | |
| 221225 | | 5 | |

STRAINERS

"T" - AMMONIA, R12, R22, R502

| | | | |
|-------|-----------|-------|--------|
| 22185 | YKAF14001 | 1/2 | W. FI. |
| 22186 | " | 3/4 | " |
| 22187 | " | 1 | " |
| 22188 | " | 1.1/4 | " |
| 22189 | " | 1.1/2 | " |
| 22190 | " | 2 | " |
| 22191 | " | 3 | " |

"Y" - AMMONIA, R12, R22, R502

| | | | |
|-------|-----------|-------|--------|
| 22192 | YKAF15001 | 1 | W. FI. |
| 22193 | " | 1.1/4 | " |
| 22194 | " | 1.1/2 | " |
| 22195 | " | 2 | " |
| 22196 | " | 2.1/2 | " |

1/2" R.A. CHARGING - PRESSURE GAUGE - AIR PURGE VALVES

| Cat. No. | TYPE | DESCRIPTION |
|----------|----------|-------------------------------------|
| 221229 | YKA22303 | 1/2" RA Valve - Charge/Press. Gauge |
| 221232 | YKA11823 | 1/2" Gauge Valve - Back Seating |

| Cat. No. | TYPE | DESCRIPTION |
|----------|----------|----------------------|
| 221230 | YKA22703 | 1/2" Air Purge Valve |
| 221231 | YKA22803 | Pressure Gauge Valve |

REFER TO FOLLOWING TECH. PAGES FOR DETAILED SPECIFICATIONS AND SELECTION DATA



**VALVES
FOR
AMMONIA
&
R12 - R22 - R502**

IDENTIFICATION CIPHER

PREFIX: YKA=AMMONIA YKF=R12,R22,R502 YKAF=AMMONIA,R12,R22,R502
YKC=CHLORINE

| TYPE | PATTERN | FUNCTION | BONNET | ENDS |
|---------------|---------------|------------------|-----------|-------------------|
| Straight 1 | Globe 1 | Stop 1 | Bolted 1 | Flanged Welded 1 |
| Right Angle 2 | Ball 2 | Expansion 2 | Screwed 2 | Flanged Screwed 2 |
| | Solenoid 3 | Charging 3 | | Screwed 3 |
| | T Strainer 4 | Safety Relief 4 | | Adaptor Flanges 7 |
| | Y Strainer 5 | Liquid Level 5 | | Table H or J 0 |
| | Dual 6 | Piston Check 6 | | |
| | Gauge Glass 7 | Air Purge 7 | | |
| | Float 8 | Pressure Gauge 8 | | |

COMBINATIONS

LIQUID LEVEL GAUGE GLASS VALVES ONLY YKA (or F)27500 c/w TUBE & GUARD 27504
SOLENOID VALVES c/w STRAINERS=YKAF 13005
SOLENOID UNITS (Stop Strainer Solenoid Stop)=YKAF 13006
DUAL STOP VALVE c/w 1/2" SAFETY RELIEF VALVES=YKAF 16128
DUAL STOP VALVE c/w 3/4" SAFETY RELIEF VALVES=YKAF 16129

SUFFIX/SIZE OF VALVE

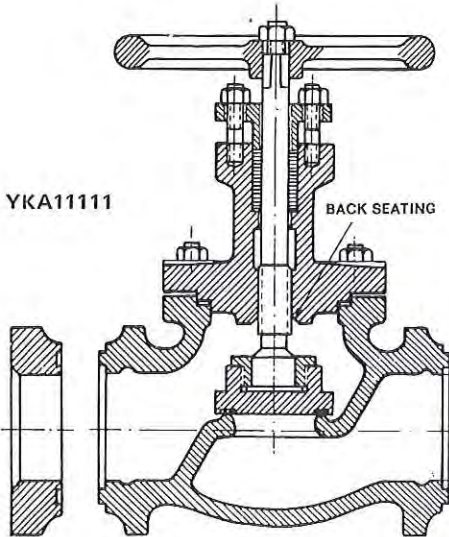
EXAMPLE 1/2" AMMONIA VALVE, Straight Stop, Bolted Bonnet, Weld Flanges=YKA11111/1/2"

WHEN ORDERING VALVES PLEASE NOTE LAST DIGIT OF CODE DENOTES TYPE OF FLANGE OR END OF VALVE, example YKA11111=WELD FLANGES, YKA11112=SCREWED FLANGES, YKA11113=SCREWED VALVE, YKF11117=ADAPTOR FLANGES, YKAF PREFIX SUITABLE FOR AMMONIA, R12,R22,R502 etc.

STOP VALVES

Precision built from semi-steel (AS B190) castings.
Maximum pressure 300 psi (2069 kPa) at 121°C (250°F).
Back seating enables repacking of glands under pressure. Full bore orifice ensures minimum pressure drop.

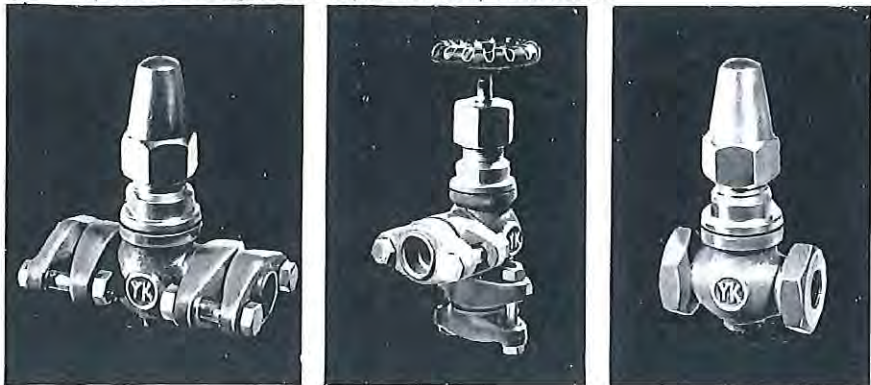
Ball Pattern Stop Valves - Steel bodies complete with hardened and plated spindles. Designed for liquid headers, oil drain etc.



YKA11111

BACK SEATING

COMPANION FLANGE



| VALVE TYPE | DESCRIPTION | BONNET | CONNECTION TYPE | AVAILABLE SIZES | INS |
|----------------|-------------------|---------|--------------------|---|-----|
| AMMONIA | | | | | |
| YKA 11111 | Straight Globe | Bolted | Weld Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6, 8 | |
| YKA 11121 | Straight Globe | Screwed | Weld Flanges | 1/4 - 3/8 - 1/2 | |
| YKA 11113 | Straight Globe | Bolted | Screwed Valve Body | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2 | |
| YKA 11123 | Straight Globe | Screwed | Screwed Valve Body | 1/4 - 3/8 - 1/2 | |
| YKA 21111 | Right Angle Globe | Bolted | Weld Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6 | |
| YKA 21121 | Right Angle Globe | Screwed | Weld Flanges | 1/2 | |
| YKA 21113 | Right Angle Globe | Bolted | Screwed Valve Body | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2 | |
| YKA 21123 | Right Angle Globe | Screwed | Screwed Valve Body | 1/2 | |
| YKA 22103 | Right Angle Ball | Screwed | Screwed Valve Body | 1/4 x 1/4, 3/8 x 1/4, 1/2 x 1/4, 3/8, 1/2, 3/4, 1, 1 1/4 | |

R12 - R22 - R502 ETC.

| | | | | |
|-----------|-------------------|---------|--------------------|---|
| YKF 11111 | Straight Globe | Bolted | Weld Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6, 8 |
| YKF 11121 | Straight Globe | Screwed | Weld Flanges | 1/4 - 3/8 - 1/2 |
| YKF 11113 | Straight Globe | Bolted | Screwed Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2 |
| YKF 11123 | Straight Globe | Screwed | Screwed Flanges | 1/4 - 3/8 - 1/2 |
| YKF 21111 | Right Angle Globe | Bolted | Weld Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6 |
| YKF 21121 | Right Angle Globe | Screwed | Weld Flanges | 1/2 |
| YKF 21113 | Right Angle Globe | Bolted | Screwed Flanges | 1/4 - 3/8 - 1/2, 3/4, 1, 1 1/4, 1 1/2 |
| YKF 21123 | Right Angle Globe | Screwed | Screwed Flanges | 1/2 |
| YKF 22103 | Right Angle Ball | Screwed | Screwed Valve Body | 1/4 x 1/4, 3/8 x 1/4, 1/2 x 1/4, 3/8, 1/2, 3/4, 1, 1 1/4 |