Welcome to Kidde Pre-Engineered Systems Training

KIDDE Wet Chemical System for Kitchens
Wet Chemical Systems

- Introduction & Objectives
- The Design Concept
- Suppression Equipment Review
- Nozzle Applications
- Pipework Parameters
- Detection & Control Equipment Review
- Competitive Advantage
- Worked Examples
Wet Chemical Systems
Training Course Objectives

- How to design and quote the basic system:
  - Understanding the design concept
  - Using the design tools
  - Hardware familiarity
Where are Wet Chemical Systems Used?

- Commercial kitchen equipment:
  - Appliances
  - Associated plenums
  - Ducts
Design Standards

- NFPA 17A ‘Wet Chem Ext Systems’
- NFPA 96 ‘Commercial Cooking Ops’
- These cover:
  - Hardware design
  - Installation
  - System design
Performance Standards

- System performance tested to UL 300

- New standard addressing:
  - Use of vegetable oil (reduced saponification)
  - Improved insulation (fuel maintains heat for longer period)
Aqueous Potassium Carbonate

How does APC do its job?

- **Saponification**
  - forms a solid film over the fuel
  - separates fuel from oxygen
  - prevents recognition

- **Cooling**
  - upon application from the spray nozzle
  - over time until below auto-ignition temp
The Design Concept

- Pre-engineered systems
- Make the application fit
- System demand is measured in Flowpoints
- Match Flowpoints to cylinder capacity
- Use design tools to develop proposal
Design Tools

- The Manual
  - note AD-1 (delete 3-14 to 3-21)
- Survey Worksheet
- BOM Calculator
- Verification Worksheet
- Parameter Guidance Notes:
Design Tools

- Container Flowpoint Ratings
- Appliance Descriptions
- Pipe Sizes & Flowpoint Capacity
- Pipework Parameters Checklist
- Nozzle Performance Summary
Challenging Areas

- Scoping the area to be protected
  - insist on clear drawings

- Classification of appliances
  - multiple terminology & proper names

- Installing the system as designed
  - experienced site staff
  - effective documentation
Design Review

- Appliance protection
- Plenum & Duct Protection
- Actuator selection
- Pipework & cylinders
- Detection & Ancillaries
Suppression Systems Components

KIDDE® Fire Systems
Cylinder & Valve Assembly

- WHDR-125 (1.25 gal)
- WHDR-260 (2.60 gal)
- WHDR-400 (4.0 gal)
  - 400S-Short Cylinder
  - 400L-Long Cylinder
- WHDR-600 (6.0 gal)
- DOT 4BW Steel Shell
- Pressure 175 psig
# Cylinders

<table>
<thead>
<tr>
<th>Cylinder Size</th>
<th>A</th>
<th>B</th>
<th>C Pressure</th>
<th>C Head</th>
<th>D</th>
</tr>
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<tbody>
<tr>
<td>1.25</td>
<td>5</td>
<td>15/8</td>
<td>16/4</td>
<td>21</td>
<td>7/8 5</td>
</tr>
<tr>
<td>2.6</td>
<td>19/8</td>
<td>21</td>
<td>22/8</td>
<td>26/8</td>
<td>9</td>
</tr>
<tr>
<td>4 Short</td>
<td>7/8</td>
<td>19</td>
<td>20/8</td>
<td>24/8</td>
<td>12</td>
</tr>
<tr>
<td>4 Tall</td>
<td>3/4</td>
<td>5/8</td>
<td>36/2</td>
<td>40/4</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>3/8</td>
<td>5/4</td>
<td>36/8</td>
<td>40/8</td>
<td>10</td>
</tr>
</tbody>
</table>
Valve
Discharge Adapter Kit

Diagram:

- FLANGE PLATE
- ADAPTER
- O-RING
- SHIPPING CAP
- CYLINDER-AND-VALVE ASSEMBLY
- NUT 5/16-18
- ANTI-RECOIL CAP
- BOLT 1/16-18 X 1.00 LG
Brackets for 1.25 -- 4 gallon

WHDR-125
WHDR-260
WHDR-400S
WHDR-400T
Steel
Bracket for Six Gallon
System Actuation Choices

- Direct mount on cylinder valve
  - Mechanical Control Head
  - Electrical Control Head

- Remote mount (surface fixing)
  - KRS-50 Control Box
Direct Mount Control Heads

- Mechanical - automatic (fusible link) & manual operation
  - no switch
  - one switch
  - two switches
- Electrical - automatic (Fenwal D-A-Fs) & manual operation
  - 120 VAC
  - 24 VAC
Control Heads

- Mechanical
  - 486607: no switch
  - 899063: 1 switch
  - 899176: 2 switches
Mechanical Control Head

- Maximum 100 feet cable: any port
- Maximum 30 corner pulleys
- Maximum 1 tee pulley on gas valve or pull station port
- Maximum 25 fusible links
- Up to tow gas valves and two mechanical pull stations
Electrical Control Head

- 899175
- 120 Volts A.C.
- 24 Volts D.C.
- Use with Fenwal Detect-A-Fire
- 2 switches
Remote Mount
KRS-50 Control Box

- Automatic (fusible link) & manual operation
- Pilot pressure operated unit
- Utilises pressure actuators, one per cylinder
- Field installed pressure switches
KRS-50 Control Box

- 87-120010-001
- Up to five cylinders
- Up to two microswitches
- Remote, up to 23 feet from last cylinder
- Includes one pressure operated actuator
Actuation

- KRS-50 (pressure)
Actuation

- Mechanical (cable)

Fig. 3-1
Actuation: Multiple Cylinders

Figure 3-5
KRS-50 Control Box

- Maximum 200 feet of cable
- Maximum 30 fusible links
- Maximum 40 corner pulleys
- No more than 16 corner pulleys to gas valve
Pressure Operated Actuator

- 87-100012-001
- Use with KRS-50
- Use with KRS-100
Hood Seal Adapters
Kidde Nozzles

- Only 6 Types
- One Piece Design
- Strainer Built In
- Foil Seal
  - Disc Cap Retains Seal
  - Prevents Orifice Obstruction
  - High Temperature
- Grooved Rings for Ease of Identification
Swivel Adapter

- Use it on any nozzle!
Seven Sizes

- $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3
Mechanical Gas Valve

- Must be operated by:
  - pneumatic release (on discharge pipework)
  - cable directly off KRS-50 discharge lever
  - directly off the actuating cam of the ECH and MCH
Mechanical Gas Valves
Electrical Gas Valve

- Manual Reset Relay MUST be used
- Eight Sizes via (also includes $\frac{1}{2}''$)

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**Fig. 2-30**
Vent Plug

- One used on every set of distribution piping
Pneumatic Release

- 9189212
- Max 20 per system
- 12 inches rise
Pressure Switch

- SPDT switch rated at
  - 15A/115 or 230 VAC
  - 5A/28 VDC

- Use the PS for pilot duty
Remote Controls

- Control Head Type (Elec. & Mech.)
  - Surface Mounted

- KRS-50 Type
  - Surface Mounted
  - Flush Mounted
Remote Manual
Pull Station for
Mechanical / Electrical
Control Head

Remote Controls:
Control Heads

IN CASE OF FIRE PULL HANDLE HARD
PULL HANDLE HARD
IN CASE OF FIRE PULL PIN
Remote Controls: KRS-50

- Surface Remote for KRS-50
- End of Line or In-line Type
Remote Controls: KRS-50

- Recessed Remote Manual Release for KRS-50
- End of Line or In-line Type
Kidde Corner Pulleys

- Used at Every Change in Direction
- Fits 1/2” EMT
- High Temperature
- Tee Pulley
  - Used for 2 Gas Valves or 2
  - Remote Manual Releases
  - Equals 2 Corner Pulleys
  - Not for Use with KRS-50
Corner Pulley

844648
Three Way Pulley

- 9197602
- For KRS-50 In-line Pull ONLY

*Must use in-line kit or complete kit for NFPA 17A*
Hardware Not Recommended

- Tandem Control Head
- Links other than KG Series
Appliance Protection

KIDDE Fire Systems
Appliance Protection - Definitions

NOZZLE HEIGHT MEASURED
FROM TOP OF APPLIANCE

Appliance Length

Hazard Area Length

Drip Board

GREASE

Side View
SINGLE VAT DEEP FAT FRYER

Appliance Width

Hazard Area Width

Front Section View

GAS RANGE

Appliance Width/Length

Hazard Area Width/Length

Nozzle Height Measured from Top of Cooking Surface

Nozzle Height Measured from Top of Cooking Surface

Appliance Width/Length

Hazard Area Width/Length

CHARBROILER
Design Tools: Nozzles

- The Manual
- Appliance Description
- Nozzle Performance Summary
Parabola Type Coverage

- Fryer with drip board
- Split Vat Fryer
- Char Broilers
- Fryer with drip board
- Split Vat Fryer
- Char Broilers

See figures: 3-7, 3-9, 3-19, 3-20, 3-21, 3-22
Fryer With Drip Board

AN F NOZZLE MAY BE LOCATED ANYWHERE WITHIN THE GRID

45” (114 cm) MAX

DIAGONAL FROM AIM POINT

45” (114 cm) MAX

MIDPOINT OF HAZARD AREA

18” (46 cm) MAX

23” (58 cm) MAX

DRIP BOARD

18” (46 cm) MAX.
Nozzle must be on the perimeter of the appliance.
Split Vat Fryer

AN F NOZZLE MAY BE LOCATED ANYWHERE WITHIN THE GRID

45" MAX

DIAGONAL FROM AIM POINT

45" (114 cm) MAX

AIM POINT: MIDPOINT OF HAZARD CENTERED ON DIVIDER

27" (69 cm) MIN

15" (38 cm) MAX

21" (114 cm) INTERIOR OVERALL

DRIP BOARD

14" (36 cm) MAX
Fryer With No Drip Board

Nozzle can be placed anywhere within the shaded area.

Figure 3-11
Low Proximity Fryer

- Split Vat Fryer *ONLY*
- Nozzle anywhere within the perimeter

Locator nozzle anywhere Within the perimeter of the Hazard Area. Aimed at the midpoint of the hazard area.

Sample nozzle placement: anywhere within the shaded area.

Page 3-7, Figure 3-12, 3-13
Low Proximity Fryer

Maximum height: 24 inches

Minimum height: 12 inches

13-1/2 inches maximum offset from center at maximum nozzle height (24 inches).

An LPF nozzle must be located anywhere in the volume.

3-1/2 inches maximum offset from center at minimum nozzle height (12 inches).

Aim point is center of cooking area including the dripboard.

Drip Board, maximum 7-3/4 inches
Modular Coverage

- Coverage based on multiples of appliance type

- Fryers: Maximum size is 864 square inches (6 square feet)
Modular Coverage

Nozzle A  Nozzle B

Nozzle can be placed anywhere within the shaded area directly over the module, that is being protected by the nozzle.

Locate the nozzle anywhere within the perimeter of the Hazard Area. Aimed at the midpoint of the hazard area.

Page 3-8
Figure 3-15

Page 3-8
Figure 3-14
Page 3-9, Figure 3-16

Modular Coverage

- Nozzle position (typical for each module) for multiple nozzle
- Diagonal from aim point
- Nozzle placement same as single vat with dripboard coverage
- Imaginary line dividing modules
- Max. liquid cooking surface: 864 in² (5574 cm²)
- DRIP BOARD
- 18" (41 cm) typ.
- 1" to 6" (2.5 cm to 15 cm)
- 18" (46 cm) max.
- 48" (122 cm)
- 27" (69 cm) min.
Lava, Pumice, Ceramic, Synthetic Rock Char Broiler
Gas, Electric Radiant Char Broiler
Natural, Mesquite Charcoal
Char Broiler
Mesquite Logs Char Broiler

Diagram:
- One DM nozzle may be located anywhere within the grid.
- 48" (122 cm) max.
- Diagonal from aim point.
- 48" (122 cm) max.
- Aim point: midpoint of hazard area.
- 24" (61 cm) min.
- 24" (61 cm) max.
- 10" (25 cm) max. fuel.
- 30" (76 cm) max.
Upright & Salamander Broiler

Diagram showing the layout of the broiler, including labels for BROILER TOP, 4" (10cm) MAX, 30-1/4" MAX, WARMING OVEN, 34" MAX, EXHAUST DUCT, GREASE DRAIN-OFF, GRILL, FRONT (BROILER DOOR REMOVED), and R. SIDE.
Woks

- Measurement is exception to the rule
- Measure to **BOTTOM** of Wok

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**Figure 3-18**

ONE GRW NOZZLE MAY BE LOCATED ANYWHERE WITHIN THE SHAPED AREA AIMED AT CENTER OF WOK.

NOTE: ONE NOZZLE IS REQUIRED FOR EACH WOK

- 14” (36cm) to 28” (71cm) DIA.
- CENTER OF HAZARD AREA AT BASE OF WOK
- INSIDE BOTTOM OF WOK

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**Page 3-10, Figure 3-18**

56” (142cm) MAX.

35” (89cm) MIN

3” (8cm) to 8” (20cm) DEPTH
Chain Broiler, Closed Top

- \( \frac{1}{4} \) inch pipe drop required
Chain Broiler, Open Top

- Two nozzles required
- 1/4 inch pipe drops required
Ranges: Four Burner

- 18” (46 cm) DIA.
- 42” (107 cm) MAX.
  (From Top of Range Surface)

- A ‘R’ nozzle may be located anywhere within the shaded area.

- 20” (51 cm) MIN.
  (From Top of Range Surface)

- AIM PT. - MIDPOINT
  OF HAZARD AREA

- 28” (71 cm) MAX.
  HAZARD AREA LENGTH

- 14” (36 cm) MAX.
  BURNER CENTERLINE TO CENTERLINE

- 28” (71 cm) MAX.
  HAZARD AREA WIDTH

- 14” (36 cm) MAX.
  BURNER CENTERLINE TO CENTERLINE
Ranges: Two Burner

![Diagram of two burners with AIM POINT label]
Range: One Burner

- Aim **BEHIND** the burner

![Diagram](image)

- 18” (46 cm) DIA.
- 42” (107 cm) MAX.
- A ‘R’ NOZZLE MAY BE LOCATED ANYWHERE WITHIN THE SHADED AREA.
- AIM PT.
- 20” (51 cm) MIN
- 7” (18 cm) FROM BURNER CENTERLINE TO AIM POINT CENTERLINE
Tilt Skillet

- Protect like a Fryer
Plenums and Ducts

- Pages 3-14 -- 3-21 are obsolete!
- See addendum 1 in the front of the manual
- Refer to Design Notes
  - Plenums
  - Ducts
Plenum Protection

4 FT. (1.2 M) PLENUM WIDTH

NOZZLE LOCATED AT EITHER END OF PLENUM LENGTH AIMED DOWN LENGTH OF PLENUM

10 FT. (3.0 M) PLENUM LENGTH

FILTERS

ACCEPTABLE NOZZLE POSITIONS FOR MULTIPLE NOZZLES

ADP NOZZLE 1 FLOW NUMBER

20 FEET

10 10

4 FT.

20 FT.

ADP NOZZLE

4 FT.

20 FT.

ADP NOZZLES

ACCEPTABLE NOZZLE POSITIONS FOR MULTIPLE NOZZLES

"V" FILTER BANK COVERAGE

1/3 W

2" BACK

3/4 H

ADP NOZZLES

SINGLE BANK FILTER COVERAGE

1/3 W

2" BACK

3/4 H
Duct Protection

DUCT PERIMETER UP TO AND INCLUDING 50 INCHES

11.78 inches maximum diagonal

12.50 IN. MAX.

SQUARE DUCT

15.91 IN. MAX.

ROUND DUCT

RECTANGULAR DUCT

2” A” + 2” B” = 65 IN

DUCT PERIMETER

DUCT ENTANCE

ADP NOZZLE

0°-6° (152 mm)

2 to 4 inches
Nozzle tip to duct hip

DUCT PROTECTION
Duct

MAXIMUM DIAGONAL: 11.78 INCHES

TYP. (2) ADP NOZZLES, 87-120011-001

NOZZLES TO BE ALONG ONE CENTERLINE AT THE ? POINTS. NOZZLES TO BE 0" TO 6" UP FROM ENTRANCE OF VERTICAL DUCT.

MAXIMUM DIAMETER: 31.83 INCHES

NOZZLE TIP TO DUCT HIP: 2 TO 4 INCHES

DUCT ENTRANCE:

DUCT OF VERTICAL DUCT:

DUCT OF HORIZONTAL DUCT:

ADP NOZZLE:

AIM POINT:

VERTICAL/HORIZONTAL DUCT:
**Large Ducts**

<table>
<thead>
<tr>
<th>15</th>
<th>15</th>
<th>15</th>
<th>15</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Nozzle to corner: 11.73 inches (Maximum allowable is 11.78 inches)

Large Duct: 18 x 60 inches
Total: 156 perimeter inches
Upper/Lower Plenum
Transitional Duct

ADP Nozzle

6 inches
System Piping

KIDDE® Fire Systems
Piping Parameters

- Cylinder Sizes, Flow Points
- Pipe Sizes, Flow Points
- Manifolding
- Equivalent Length Limitations
- Volume Limitations
- Use the Excel Verification Sheet
Piping Parameters

- Use only sch 40 black and stainless pipe - no galvanised
- Manifolds: fabricate from pipe fittings
- Use ‘Loctite 577’ pipe dope to ensure tight joints (overrides manual)
- KRS-50: use $\frac{3}{16}$” Enot’s tubing system with $\frac{1}{4}$” outlet adaptor
- Fit a pressure bleed in pipe (to protect nozzle seals)
## Cylinder Sizes, Flow Points

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>Flow Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHDR-125</td>
<td>4 flows</td>
</tr>
<tr>
<td>WHDR-260</td>
<td>8 flows</td>
</tr>
<tr>
<td>WHDR-400</td>
<td></td>
</tr>
<tr>
<td>1 cylinder</td>
<td>12 flows</td>
</tr>
<tr>
<td>2 cylinders</td>
<td>24 flows</td>
</tr>
<tr>
<td>3 cylinders</td>
<td>36 flows</td>
</tr>
<tr>
<td>4 cylinders</td>
<td>48 flows</td>
</tr>
<tr>
<td>WHDR-600</td>
<td></td>
</tr>
<tr>
<td>1 cylinder</td>
<td>18 flows</td>
</tr>
<tr>
<td>2 cylinders</td>
<td>36 flows</td>
</tr>
</tbody>
</table>
## Pipe Size, Flow Points

<table>
<thead>
<tr>
<th>Flow Numbers</th>
<th>Pipe Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1/4 inch</td>
</tr>
<tr>
<td>1-8</td>
<td>3/8 inch</td>
</tr>
<tr>
<td>1-12</td>
<td>1/2 inch</td>
</tr>
<tr>
<td>13-24 *</td>
<td>3/4 inch</td>
</tr>
<tr>
<td>25-48 *</td>
<td>1 inch</td>
</tr>
</tbody>
</table>

*Table 3.5*
Pipe Sizes and Flows

Diagram:

- Pipe Sizes:
  - ¾" (1.9 cm)
  - ½" (1.3 cm)

- Flows:
  - 6 Flow Numbers
  - 12 Flow Numbers

- Flow Directions:
  - TO NOZZLES PROTECTING DUCTS
  - TO NOZZLES PROTECTING PLENUM & APPLIANCES

- Drop Point:
  - DROP POINT

- Equipment:
  - WHDR-600
Pipe Sizes and Flows
Pipe Sizes and Flows

- 2/3" (.6 cm) PIPE
- 3/8" (1.0 cm) PIPE
- 5/8" (1.3 cm) PIPE

**SEE NOTE ABOVE**

- 40" (1.2m) MAX.
- 12' (3.7 cm) MAX.
## Discharge Line Volume

<table>
<thead>
<tr>
<th>Size</th>
<th>Volume per foot</th>
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<tbody>
<tr>
<td>1/4 inch</td>
<td>1.25 cubic inch</td>
</tr>
<tr>
<td>3/8</td>
<td>2.29</td>
</tr>
<tr>
<td>1/2</td>
<td>3.65</td>
</tr>
<tr>
<td>3/4</td>
<td>6.40</td>
</tr>
<tr>
<td>1 inch</td>
<td>10.37</td>
</tr>
</tbody>
</table>

### Cylinder Volume

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>Volume</th>
<th>3/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHDR-125</td>
<td>72 cu. in.</td>
<td>72</td>
</tr>
<tr>
<td>WHDR-260</td>
<td>139</td>
<td>95</td>
</tr>
<tr>
<td>WHDR-400</td>
<td>400</td>
<td>95</td>
</tr>
<tr>
<td>WHDR-600</td>
<td>400</td>
<td>95</td>
</tr>
</tbody>
</table>
## Equivalent Length: Remote Nozzles

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>Cyl to Nozz</th>
<th>Nozzles</th>
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<tbody>
<tr>
<td>125</td>
<td>39</td>
<td>33</td>
</tr>
<tr>
<td>260</td>
<td>63.4</td>
<td>43.7</td>
</tr>
<tr>
<td>400</td>
<td>132 *</td>
<td>95 *</td>
</tr>
<tr>
<td>600</td>
<td>75 *</td>
<td>80 *</td>
</tr>
</tbody>
</table>

*Applies to manifolded systems*
Equivalent Length: Example

- 1/2" Elbow = 1.5 equ. ft (Table 3.9)
- 1/2" Pipe = 1 equ. ft per ft
- Total = 1.5 + 1.5 + 1 = 4 equ. ft
Equivalent Length

- How to measure tees

<table>
<thead>
<tr>
<th>TO THE MOST REMOTE NOZZLE ON EITHER SIDE</th>
<th>TO THE MOST REMOTE NOZZLE</th>
<th>TO A NOZZLE THAT IS NOT THE MOST REMOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROM CYLINDER</td>
<td>FROM CYLINDER</td>
<td>FROM CYLINDER</td>
</tr>
<tr>
<td>TEE ON THE BULL (OUTLET)</td>
<td>TEE ON THE RUN</td>
<td>CONSIDERED A TEE ON THE BULL (OUTLET)</td>
</tr>
</tbody>
</table>
Measuring Tees: Manifolds
Minimum Pipe Length

- For cylinder to an appliance where there could be splash

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Minimum Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 and 3/8</td>
<td>8.5 + (1) ell</td>
</tr>
<tr>
<td>1/2</td>
<td>7.0 + (2) ells</td>
</tr>
<tr>
<td>3/4 &amp; 1 inch</td>
<td>10 eq. feet of 1/2 inch</td>
</tr>
</tbody>
</table>
## Special 3/8 Only System

<table>
<thead>
<tr>
<th>Limitations</th>
<th>125</th>
<th>260</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Line Volume</td>
<td>72</td>
<td>99</td>
<td>161</td>
</tr>
<tr>
<td>Max Eq. Cylinder to Nozzle</td>
<td>39</td>
<td>40</td>
<td>59</td>
</tr>
<tr>
<td>Max Eq. Nozzle to Nozzle</td>
<td>33</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>Max Eq. 1/2 Cylinder to Hood</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Min. Eq. Line Cyl to Liq. Haz</td>
<td>8.5 + ell</td>
<td>8.5 + ell</td>
<td>8.5 + ell</td>
</tr>
</tbody>
</table>
Things To Remember!

- Maximum of 100 equivalent feet of 1/4 inch pipe per branch line. Maximum 40 linear feet per branch line.
- Highest point of system no more than 12 feet above cylinder outlet.
- No more than 4 feet rise for any branch line above supply line.
- Do not exceed maximum pipe volume.
- Do not exceed maximum equivalent length limitations.
- Do not exceed flow points for any given pipe size.
- No low points or traps.
Detection System Components

KIDDE® Fire Systems
Detection Options

- DAF's for Electrical Control Head
- KG Series Fusible Links for MCH, KRS-50
  - standard response
  - rapid response
- KML Series Links for MCH only
  - 165°, 212°, 360°, 500° Low-Melt Solder Fusible Links
  - plus Quartzoid Bulb Link 500°F
- KRS Series - New glass bulb for high temp
Detection

- Fusible Links for KRS-50
  - Quartzoid Bulb for High Temp applications

Page 2-11, figure 2-16

Page 2-12, figure 2-18
Mechanical Detection Systems

KRS-50
- KRS-50 Detector Assy (fig 2-18)
- Use Quartzoid Bulb 500°F (Fig 2-18)
- Or Fusible “A” Link 360°F (Page 2-12)
- Or KG Series 165°F to 500°F

MCH
- Use KML Fusible Link (Page 2-11)
- KML Series 165°F, 212°F, 360°F and 500°F
- Or KG Series 165°F to 500°F
Detection, KG Series

- New Glass Bulb Technology for Special Hazards
- Proven Technology in Fire Protection
KG Series Links

- Available in six temperatures
- Available in Standard and Rapid Response
- Listed with both KRS-50 and MCH

Will be in addendum number 2
Standard KML Fusible Links for MCH Only

*½ " EMT
(ANCHOR ALL EMT CONDUIT SECURELY)

LAST DETECTOR IN SERIES

EMT ADAPTER

1-½" MIN.

STAINLESS STEEL CABLE

CRIMP SLEEVE

S-HOOK

FUSIBLE LINK

* CALLED TERMINAL LINK

TO CONTROL HEAD OR OTHER DETECTORS
Placement of Fusible Links
Placement of Fusible Links

- Only in the plenum & ducts
- Duct: at the hood/duct opening or a maximum of 12” downstream
- Appliances: one unit per 54” x 54” of appliance area
- Duplications for appliances below the hood/duct is not required (Page 3-33)
Electric Detection

- One Detect-A-Fire for every 20 feet of plenum
- One Detect-A-Fire in the duct
Detection

- Detect-A-Fire for Electrical

![Diagram of Detect-A-Fire electrical detection system]

- Low expansion struts
- Contact points
- Braze-sealed head
- Electraca leads
- Expanding outer shell
- Glass beads hermetic seal
- Electrical insulation
- Braze-sealed end
- Adjusting screws
Competitive Advantage

- Ansul is the benchmark competitor
- Larger container than R101 (6g v. 3g)
- Pressurised cylinder - pressure gauge
- Manifold capability (up to 4 cyls)