

DV-5A Red-E Cabinet Integrated Preaction Fire Protection Package

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

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General Description

The TYCO DV-5A Red-E Cabinet is a pre-assembled fire protection valve package enclosed within a free-standing cabinet designed to occupy minimal floor space and to provide an aesthetically pleasing enclosure for a fire protection valve riser. The entire package is pre-wired and the water inlet and outlets to the valve riser are grooved to provide minimal installation time. The valve package includes a system (manual) shut-off control valve, an automatic water control valve, and water-flow/supervisory switches. A built-in air compressor with associated controls provides an automatic air supply for use as either supervision and pneumatic actuation of the automatic water control valve.

Integral to the DV-5A Red-E Cabinet is a control panel and back-up batteries for providing electrical alarm, supervisory, and trouble functions. All switches within the cabinet are pre-wired to the control panel, making the electrical connections for power, detection circuits, and alarms the only remaining connections to complete the system.

In addition to the control panel being integral to the DV-5A Red-E Cabinet, windows are provided in the door for viewing the releasing panel functions and essential system pressure gauges. A lock for the control panel access door is standard, and a lock for the cabinet door is optional.

Features and benefits are as follows:

- Aesthetically pleasing appearance
- Professionally assembled
- Internally wired
- Custom manufactured
- All gauges and panel display are externally visible
- Industrial grade rollers (4) are standard at bottom of cabinet
- Forklift compatible
- Two-door cabinet design for ease of maintenance
- Internal, gauge panel, and control panel lighting
- Optional Model QRS Electronic Accelerator for the 6 in. and 8 in. Double Interlock Electric/Electric Actuation system types
- Optional seismic kit

The DV-5A Red-E Cabinet is designed to readily incorporate 1-1/2 to 8 in. (DN40 to DN200) valve risers for the following types of preaction systems:

- Single Interlock Wet Pilot Actuation
- Single Interlock Dry Pilot Actuation
- Single Interlock Electric Actuation
- Double Interlock Electric/Pneumatic
- Double Interlock Electric/Electric
- Preaction Type A



NOTICE

The DV-5A Red-E Cabinets described herein must be installed and maintained in compliance with this document and with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.

Technical Data

Approvals

UL and C-UL Listed, FM Approved, CSFM Listed System Types

- Single Interlock Wet Pilot Actuation
- Single Interlock Dry Pilot Actuation
- Single Interlock Electric Actuation
- Double Interlock Electric/Pneumatic Actuation
- Double Interlock Electric/Electric Actuation

DIM	Description	Nominal Riser Size Nominal Dimension in. (mm) ¹					
		1 1/2 (DN40)	2 (DN50)	3 (DN80)	4 (DN100)	6 (DN150)	8 (DN200)
A	System Discharge	1 1/2 (DN40)	2 (DN50)	3 (DN80)	4 (DN100)	6 (DN150)	8 (DN200)
B	Supply Header	4 (DN100)				8 (DN200)	
C	Drain Header	2 (DN50)					
D	Header Left	17.0 (431,8)				24.75 (628,7)	
E	Header Right	16 (406,4)				26.75 (679,5)	
F	Riser Height	68.26 (1733,8)	68.40 (1737,4)	68.44 (1738,4)	67.34 (1710,4)	67.9 (1724,7)	
G	Connection Offset	9.42 (239,3)				9.34 (237,2)	
H	Connection Offset	5.0 (127,0)				8.6 (218,4)	
J	Connection Offset	4.88 (124,0)				8.5 (215,9)	
K	Connection Offset	6.88 (174,8)				9.5 (241,3)	
L	Connection Offset	5.63 (143,0)				6.57 (166,9)	
M	Connection Offset	19.5 (495,3)				25.15 (638,8)	
N	Cabinet Height	73.25 (1860,6)				73.5 (1866,9)	
P	Cabinet Width	38.15 (969,0)				48.15 (1223,0)	
R	Cabinet Depth	23.73 (602,7)				29.64 (752,9)	

Notes

1. All pipe connections are grooved
2. Supply and drain header connections made internal to cabinet

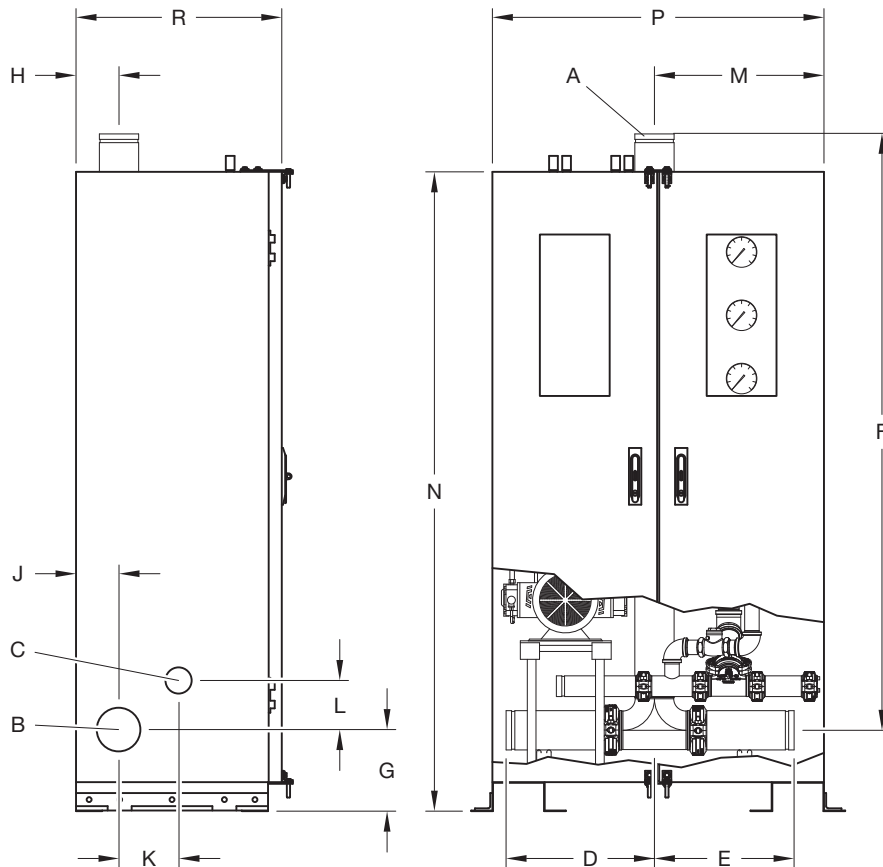
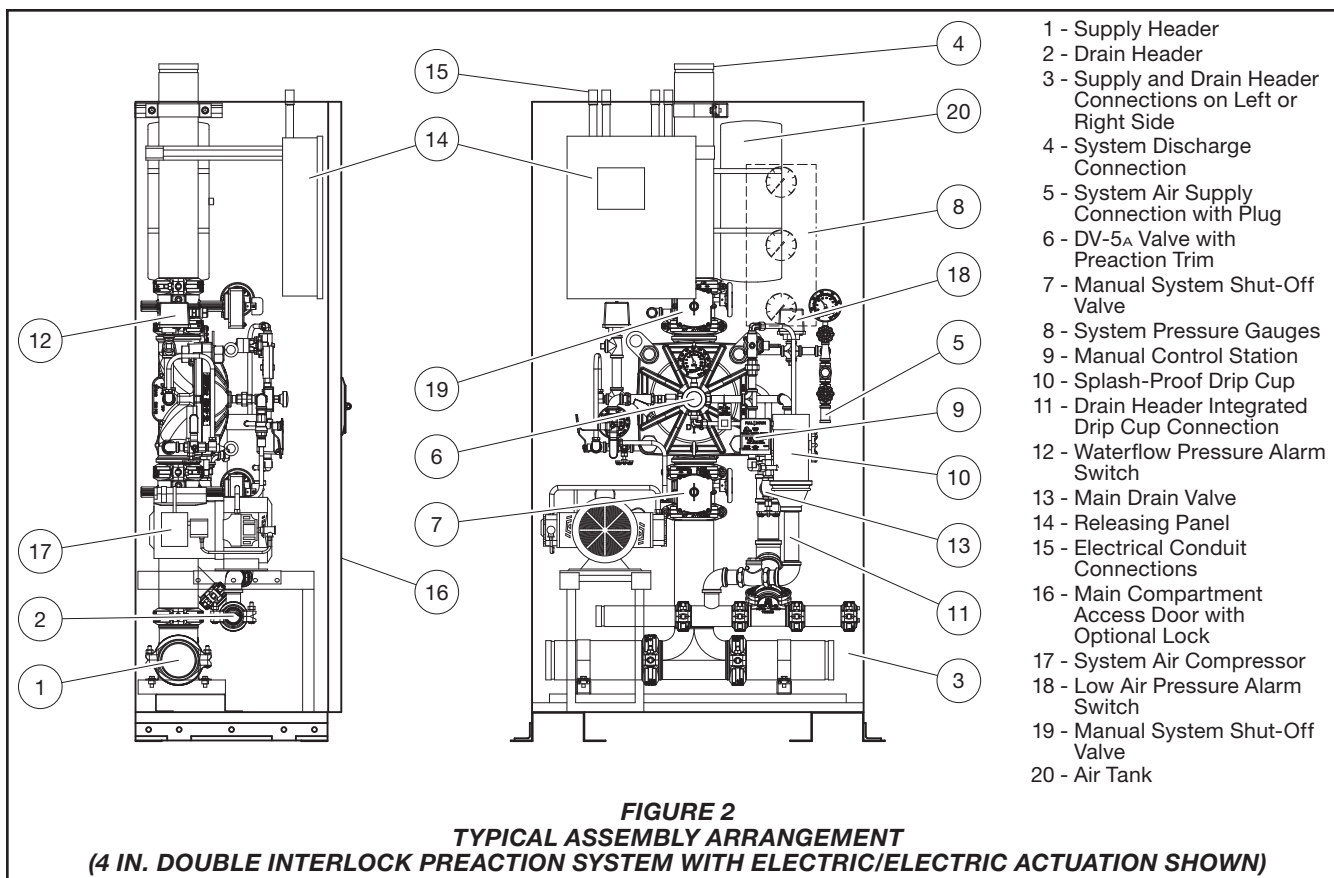


FIGURE 1
INSTALLATION DIMENSIONS AND REFERENCE POINTS



System Types

The technical data sheets referenced in Table A provide complete details for each system type arrangement.

Working Pressure Range

DV-5A Valve: 20 to 300 psi (1,4 to 20,7 bar)

DV-5A Valve Trim: Refer to individual trim technical data sheets for rated trim pressures as shown in Table A.

Construction

The Red-E Cabinet is constructed of a minimum thickness of 14 gauge steel and is free standing. The standard paint finish is bright red and black. The front doors of the enclosure are fully hinged (and removable) and open nearly to the cabinet floor level allowing easy access to the couplings when connecting the water supply and drain. Pre-drilled holes on tabs along the base of the cabinet provide an anchor point for the cabinet to be secured to the floor when required. Industrial grade rollers at the bottom of the cabinet are standard. Internal controls that provide functions to reset a system after operation - for example, the alarm test valve or main

drain valve - are individually tagged for easy identification. All prefabricated piping is Schedule 40 steel.

A splash-resistant drain cup is provided that ensures water does not splash into the cabinet during flow testing. The discharging water can be observed through a clear tube attached to the drain cup. It is designed with a fail-safe feature allowing water to overflow in the event the drain is blocked.

The hard piped funnel drain is connected through a swing check valve to the main drain header, eliminating the need to run a separate drain line from the funnel. The cabinet floor is provided with a drain opening to allow water to drain out. A plug is also provided to prevent water from draining from the cabinet if necessary.

The air supply connection for cabinets without compressors (using AMD-1) are terminated at a common height across all model sizes allowing the connection of groups of cabinets easier. This allows a single tank mounted compres-

sor sized to meet the requirements of the largest system in the group to supply all the cabinets in the group, or alternatively, connect to the factory air supply. The air supply line contains a tee and plug which is used to connect a hydraulic test pump that pressurizes the sprinkler system above the butterfly valve for hydraulic testing of the system in accordance with NFPA 13.

Table A provides list of riser components and a cross reference to individual technical data sheets, as well as individual component laboratory approval information.

Figure 1 shows dimensional information for Red-E Cabinets, and Figure 2 illustrates the typical assembly arrangement.

Description	Model	TDS*	UL	C-UL/ULC	FM Global	CSA
Automatic Water Control Valve and Preaction Trim	DV-5A					
Single Interlock Wet Pilot Actuation		TFP1411	X	X	X	
Single Interlock Dry Pilot Actuation		TFP1416	X	X	X	
Single Interlock Electric Actuation		TFP1421	X	X	X	
Double Interlock Electric/Pneumatic Actuation		TFP1461	X	X	X	
Double Interlock Electric/Electric Actuation		TFP1466	X	X	X	
Preaction Type A		TFP1485				
System Shut-off Valve, 1 1/2 to 2 in. (DN40 to DN50)	POWERBALL		X ⁵	X ⁵	X ⁵	
System Shut-off Valve, 3 to 8 in. (DN80 to DN200)	BFV-300	TFP1511	X	X	X	
Pressure Alarm Switch, POTTER	PS10-2A		X ⁶	X ⁶	X ⁶	
Pressure Alarm Switch, POTTER	PS40-2A		X ⁶	X ⁶	X ⁶	
Control Panel ¹ , POTTER	PFC-4410RC		X ⁶	X ⁶	X ⁶	
Automatic Supervisory Air Supply ²	G16AC812	TFP1620	X ⁷			X ⁷
Air Maintenance Device ³ , Regulator Type	AMD-1	TFP1221	X	X	X	
Air Maintenance Device ⁴ , Switch Type	AMD-2	TFP1231	X	X	X	
Nitrogen Maintenance Device ⁴	AMD-3	TFP1241	X	X	X	
Model QRS Electronic Accelerator	QRS	TFP1100	X		X	

Notes

- The Model PFC-4410RC is standard. The Red-E Cabinet may be ordered without an integral control panel. Preaction Type A systems are not approved for use with PFC-4410RC Control Panel, utilizing model Fast 2000 instead.
 - The Model G16AC812 is utilized to maintain supervisory air pressure in all sizes of single interlock preaction systems with either electric actuation or wet pilot actuation.
 - The Model AMD-1 Air Maintenance Device, in addition to an auxiliary air tank, is utilized as standard equipment in single interlock preaction systems with dry pilot actuation, as well as double interlock preaction systems with electric/electric actuation and double interlock systems with electric/pneumatic actuation having a compressor that delivers air at 5.5 ft³/min (0.16 m³/min) or higher. In the case of single interlock preaction systems with dry pilot actuation, two AMD-1's are utilized to accomplish the two different pressure settings that are necessary for the system piping and the dry pilot line. In the case of double interlock preaction systems with electric/electric actuation, one AMD-1 is utilized to maintain the system pressure.
 - The Model AMD-2 Air Maintenance Device and Model AMD-3 Nitrogen Maintenance Device, as well as the Model AMD-1 Air Maintenance Device, are offered as options when the Red-E Cabinet is ordered without a built-in (for example, air compressor) automatic air supply.
 - Approvals under the name of LANSDALE VALVE & MANUFACTURING.
 - Approvals under the name of POTTER.
 - Approvals for the compressor and motor are under the name of GENERAL AIR PRODUCTS, and the approvals for the pressure operated switch are under the name of HUB-BELL or CONDOR.
- * TDS – Technical Data Sheet

TABLE A
PRINCIPAL COMPONENTS
TECHNICAL DATA SHEETS AND LABORATORY APPROVALS

Model Number	Horsepower	Voltage ¹	Electric/Electric Actuation	Electric/Pneumatic Actuation
			System Volume @20 psi in 30 min. gal (L)	System Volume @40 psi in 30 min. gal (L)
OLR12016AC	1/6	115/208-230 VAC 60 Hz	240 (909)	120 (454)
OLR25033AC	1/3	115/208-230 VAC 60 Hz	475 (1795)	250 (945)
OLR40050AC	1/2	115/208-230 VAC 60 Hz	800 (3028)	400 (1514)
OLR43075AC	3/4	115/208-230 VAC 60 Hz	930 (3520)	430 (1625)
OLR615100AC ²	1	115/208-230 VAC 60 Hz	1430 (5410)	615 (2325)
OLR915150AC ²	1 1/2	115/208-230 VAC 60 Hz	2320 (8780)	915 (3460)
OLR1225200AC ²	2	208-230 VAC 60 Hz	3040 (11500)	1225 (4635)

Notes

- Unless otherwise specified, 115 VAC, 60 Hz is provided.
- 6 in. (DN150) and 8 in. (DN200) cabinets only.

TABLE B
AIR COMPRESSOR SELECTION FOR DOUBLE INTERLOCK PREACTION SYSTEM ARRANGEMENTS

Model Number	Power Rating (kW)	60 Hz Model Equivalent Horsepower Rating ¹ (hp)	Voltage	Electric/Electric Actuation	Electric/Pneumatic Actuation
				System Volume @20 psi (1.36 bar) in 30 mins gal (L)	System Volume @40 psi (2.76 bar) in 30 mins gal (L)
OLR12016AC-50	0.12	1/6	220-240 VAC 50 Hz	192 (727)	96 (362)
OLR25033AC-50	0.25	1/3	220-240 VAC 50 Hz	414 (1567)	207 (785)
OLR40050AC-50	0.56	1/2	220-240 VAC 50 Hz	664 (2514)	332 (1257)
OLR43075AC-50	0.75	3/4	220-240 VAC 50 Hz	989 (3743)	357 (1350)
OLR615100AC-50 ²	1.2	1	220-240 VAC 50 Hz	—	517 (1956)
OLR915150AC-50 ²	1.5	1 1/2	220-240 VAC 50 Hz	—	758 (2870)
OLR1225200AC-50 ²	2	2	220-240 VAC 50 Hz	—	1014 (3840)

Notes

1. Denotes the equivalent model of 60 Hz compressor for part number use. 50 Hz must specifically be request in ordering process. The horsepoer model equivalent is not a direct conversion to kW. Actual conversion from kilowatts (kW) to horsepower units (hp) is based on 1 kW = 1.34102 hp.
2. For 6 in. (DN150) and 8 in. (DN200) cabinets only.

TABLE C
50 HZ AIR COMPRESSOR SELECTION CRITERIA
FOR DOUBLE INTERLOCK PREACTION SYSTEM ARRANGEMENTS
BASED ON SYSTEM TYPE AND VOLUME

Design Considerations

The automatic sprinklers and/or nozzles, fire detection devices, manual pull stations, and signaling devices that are to be utilized with the Red-E Cabinet must be UL Listed, ULC Listed, C-UL Listed, or FM Approved, as applicable. With reference to Figure 3, the system designer must consider and make preparations for use of a Red-E Cabinet as follows:

- Adequate floor space to facilitate opening of the cabinet doors
- Minimum ambient temperature of 40°F (4°C)
- Installation of a suitably sized water supply to the water supply header (Port B, Figure 1)
- Installation of system piping (Port A, Figure 1) including automatic sprinklers and/or nozzles from the Red-E cabinet outlet
- Installation of drains from main drain header (Port C, Figure 1)
- Installation of the detection system components and alarms
- Determination of air compressor size for double interlock preaction systems as a function of system type and volume as shown in Table B
- Power supply to Red-E Cabinet
- Separate power supply to the air compressor

Installation

The TYCO Red-E Cabinet is to be installed following the directions given in the “Red-E Cabinet Installer’s Manual” provided with the Red-E Cabinet. Instructions pertain to the following items:

- Placing the cabinet
- Connecting the system piping
- Electrical connections
- System start-up

Care and Maintenance

The TYCO DV-5A Red E-Cabinet must be maintained and serviced in accordance with this section.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection systems must first be obtained from the proper authorities. All personnel who may be affected by this decision must be notified.

Inspection, testing, and maintenance must be performed in accordance with the requirements of the NFPA, and any impairment must be immediately corrected.

The TYCO Red-E Cabinet does not require any regularly scheduled inspection or maintenance. The riser components enclosed within the Red-E Cabinet, however, must be maintained in accordance with their applicable technical data sheet as shown in Table A. In addition, the control panel and automatic air supply components must be maintained in accordance with their applicable instructions provided with the Red-E Cabinet.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of any authorities having jurisdiction. Contact the installing contractor or product manufacturer with any questions.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

Red-E Cabinet Technical Support

Technical support for the Red-E Cabinet is available by calling 888-572-4638 during regular business hours of 8:30-12:00 and 1:00-5:00 Eastern Time Monday through Friday.

Contact Red-E Cabinet Technical Support for special request cabinet configuration or electrical connection/control panel programming inquiries.

An answering service will take messages outside of the regular business hours.

Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

The Part Numbers (P/Ns) in this section are provided for standard cabinets with integral control panel, built-in automatic air supply, for example, air compressor and controls, and galvanized pipe, nipples, and fittings.

DV-5A Red-E Cabinet with Single Interlock Preaction System

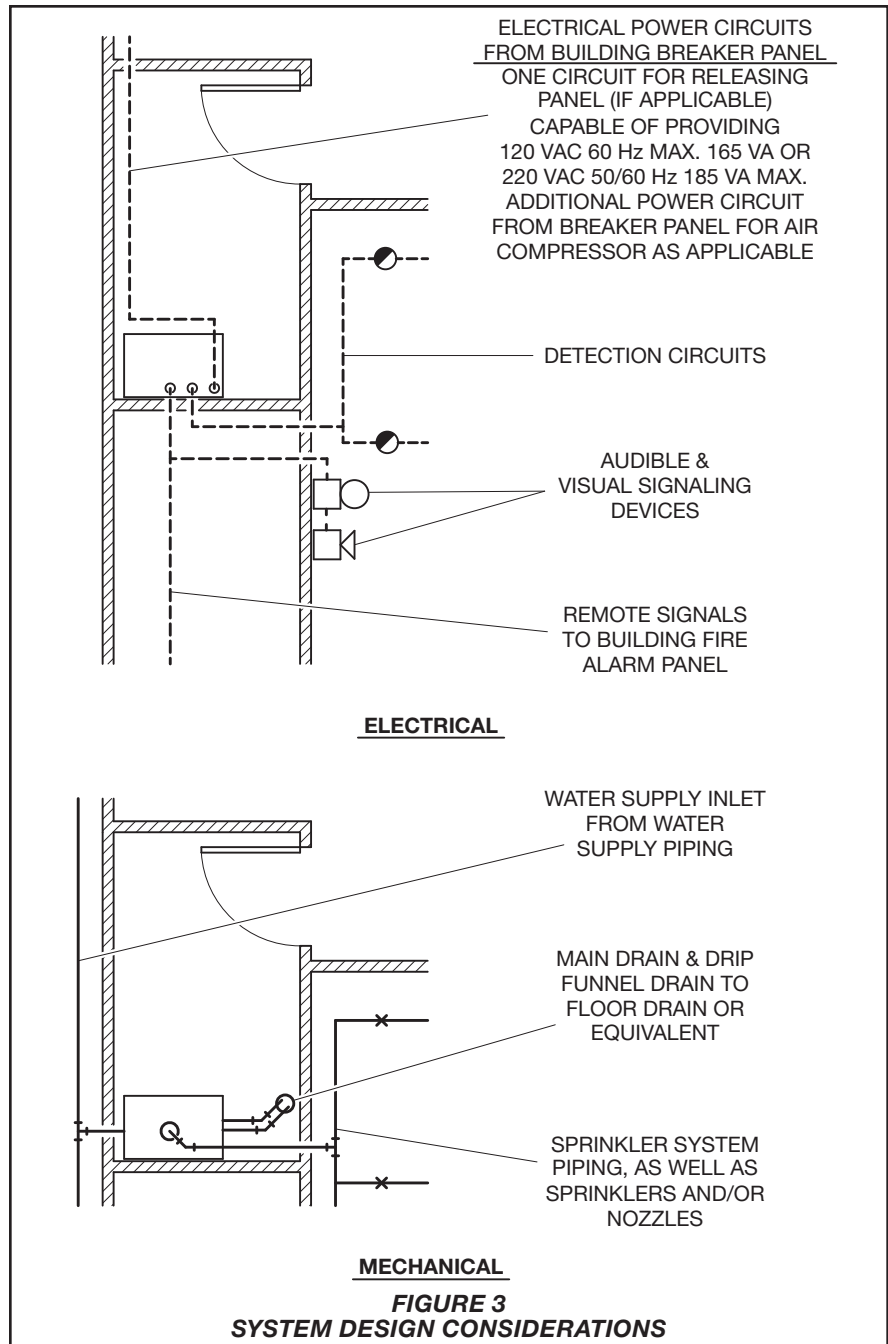
Specify: Size (specify) DV-5A Red-E Cabinet with (specify actuation) Single Interlock Preaction System Riser, P/N (specify per Table D)

NOTICE

Electric Actuation and Wet Pilot Actuation are provided standard with the Model G16AC812 Automatic Air Supply utilizing a 1/6 HP motor. Dry Pilot Actuation is provided standard with an OL12516AC (1/6 HP) Air Compressor and Auxiliary Air Tank complete with Model AMD-1 Air Maintenance Devices.

DV-5A Red-E Cabinet with Double Interlock Preaction System and Electric/Electric Actuation

Specify: Size (specify) DV-5A Red-E Cabinet with Electric/Electric-Actuated Double Interlock Preaction System Riser with (specify model from Table B or C) Air Compressor, P/N (specify from Table D)



P/N53 - X - X - XX - X - X - X - X

Solenoid Pressure Rating		Air Maintenance Device¹		Control Panel		Compressor^{1,4}	
0	300 psi solenoid (standard)	0	None	0	None	0	None
1		1	AMD-1	A	Included	1	1/6 hp 120 Gal
2		2	AMD-2	Trim Type²		2	1/3 hp 250 Gal
3		3	AMD-3	1 NPT Galvanized		3	1/2 hp 400 Gal
Size in.		System Type³		<ol style="list-style-type: none"> 1. Air Maintenance Device does not apply (select "0" - None) when a Compressor (1-8) is selected. 2. Black trim types are available only on request. Contact Red-E Cabinet Technical Support for information. 3. Special Order DV-5A Red-E Cabinet Integrated Preaction Fire Protection Package featuring Model QRS Electronic Accelerator is available in configurations limited to 6 in. or 8 in. Size, Double Interlock Electric/Electric Actuation System Type, Model AMD-1 Air Maintenance Device, NPT Galvanized Trim Type, Control Panel Included and No Compressor. Part Numbers: 6 in. 53061511A0Q; 8 in. 53081511A0Q. 4. A 50 Hz compressor model is available on request, select the equivalent horsepower rating (1-8). 			
1	1 1/2	11	Single Interlock Wet Pilot Actuation				
2	2	12	Single Interlock Dry Pilot Actuation				
3	3	13	Single Interlock Electric Actuation				
4	4	14	Double Interlock Electric/Pneumatic Actuation				
6	6 (168,3 mm)	15	Double Interlock Electric/Electric Actuation				
8	8	16	Preaction Type A				
8	8	8	S/I Compressor				

* Requires 230V/60Hz

TABLE D
DV-5A RED-E CABINET PREACTION SYSTEMS
PART NUMBER SELECTION

DV-5A Red-E Cabinet with Double Interlock Preaction System and Electric/Pneumatic Actuation

Specify: Size (specify) DV-5A Red-E Cabinet with Electric/Pneumatic-Actuated Double Interlock Preaction System Riser with (specify model from Table B or C) Air Compressor, P/N (specify from Table D)

Special Orders

The DV-5A Red-E Cabinet can be provided as follows as part of a special request cabinet configuration:

- without the control panel
- without built-in automatic air supply, for example, air compressor and controls
- with an optional air/nitrogen maintenance device when ordered without built-in automatic air supply
- with trim black pipe, nipples, and fittings, as may be desired for AFFF systems
- with Model QRS Electronic Accelerator, for the 6 in. and 8 in. Double Interlock Electric/Electric Actuation system types as shown in Table D, note 3; and refer to Technical Data Sheet TFP1100 for more information
- with special size air compressors for single interlock systems
- with 50 Hz air compressors
- with seismic kit. Kit must be ordered separately.

Valve Size	Part No.
1 1/2 to 4 in.	53-040-0-001
4 to 8 in.	53-080-0-001

Options

- with sight flow gage (provides a visual indication of flow through the main drain)
- with extra capacity batteries (12V up to 18Ah) for longer battery time and/or systems with heavy power requirements, for example, numerous audible signaling devices
- with Class "A" initiating appliance circuits (this option permits the connection of Class "A" style wiring to the initiating zones)
- with Class "A" indicating appliance circuits (this option permits the connection of Class "A" style wiring to the indicating zones)
- with auxiliary relay modules to provide extra-dry contacts when required; up to an 8 ARM-44 module per cabinet can be added
- with RA-4410 RC Remote Annunciator

Contact Red-E Cabinet Technical Support for information about special request cabinet configurations.



TFP1401 Change History Appendix

ISSUE DATE	NOTES
07-22	Page 1, added QR code and URL to allow convenient access to electronic version from printed document; Pages 4 and 5, Tables B and C, Air Compressor Selection Criteria, changed Model Numbers Voltages and System Volumes; Page 7, Table D Part Number Selection, changed Compressor capacity of 1/6 and 1/2 hp models (changes in Tables B, C and D made to reflect design updates by compressor supplier).
08-21	Clarified Table D Part Number Selection that metric equivalent for 6 in. size is 168,3 mm.
12-20	Added 50Hz Air Compressor selection table and instruction for ordering on specific request.
09-20	Added CSFM Listed to Approvals sub-section; Changed Table A footnote 3 to include automatic air supply compressor output flow rate 5.5 ft ³ /min (0.16 m ³ /min) or higher for maintaining pressure required for dry pilot lines.
07-20	Standardized pipe size naming convention throughout; Clarified cabinet construction is minimum 14 gauge steel.
08-19	Added option for Model QRS Electronic Accelerator with Double Interlock Preaction Electric/Electric actuation configuration.
06-19	Add note referring to individual trim and actuation assembly technical data sheets for pressure ratings.
04-19	Removed 175 psi Solenoid option from part number selection table and Ordering Procedure.
03-19	Change caster roller type to industrial grade, formerly shown as furniture grade.
02-19	New Technical Data Sheet TFP1401 describes DV-5A Red-E Cabinet Integrated Preaction Fire Protection Package.