

Storage Sprinkler Quick Reference Guide

This guide is intended for general reference only. Prior to the design, layout, and/or installation of any sprinkler system, please refer to Minimax's technical documentation and always consult with the AHJ. Minimax makes no representation or warranty as to whether following this guide will satisfy any rule or requirement. Please visit www.minimax-fire.com for the most current technical data and product specifications. All products must be installed in accordance with the manufacturer's current installation instructions. Minimax reserves the right to change product specifications at any time without notice and without incurring obligation.



Early Suppression Fast Response (ESFR) Sprinklers

14.0 (202) K-factor



MX8520, ESFR Upright

Base Part Number:	61332
Technical Datasheet:	FX_060298
NPT Thread:	3/4 in

- Protects up to 35 ft (10,7 m) high buildings without using in-rack sprinklers
- Upright design provides more options for designing around obstructions
- Install directly onto system piping up to 3 in (75 mm) diameter pipe
- Easy to retrofit into existing upright sprinkler systems
- Can be installed on same branch line as K14 ESFR pendent sprinklers

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹																	
ceiling height (ft) >	45'					40'					35'		32'	30'		25'	
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	25'	20'	20'	
Class I-IV Commodity											1455	1455	1455	1302	1188	1188	1188
Cartoned Nonexpanded Plastic											1455	1455	1455	1302	1188	1188	1188
Cartoned Expanded Plastic															1188	1188	1188

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12). Refer to FM design criteria in technical datasheet.

14.0 (202) K-factor



MX8500, ESFR Pendent

Base Part Number:	61302
Technical Datasheet:	FX_060198
NPT Thread:	3/4 in

- Protects up to 35 ft (10,7 m) high buildings without using in-rack sprinklers
- Sprinklers may be spaced up to 12 ft (3,7 m) for buildings up to 30 ft (9,1 m)
- Coverage area per sprinkler may not exceed 100 ft² (9,3 m²)
- Available in 165° F and 205° F temperature ratings

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹																	
ceiling height (ft) >	45'					40'					35'		32'	30'		25'	
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	25'	20'	20'	
Class I-IV Commodity											1455	1455	1455	1302	1188	1188	1188
Cartoned Nonexpanded Plastic											1455	1455	1455	1302	1188	1188	1188
Cartoned Expanded Plastic														1302	1188	1188	1188
Exposed Nonexpanded Plastic											1455	1455	1455	1302	1188	1188	1188

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

Storage Sprinkler Quick Reference Guide

Early Suppression Fast Response (ESFR) Sprinklers

16.8 (242) K-factor



MX8503, ESFR Pendent

Base Part Number:	61303
Technical Datasheet:	FX_120106
NPT Thread:	3/4 in

- Protects up to 35 ft (10,7 m) high piled storage without using in-rack sprinklers in buildings with 40 ft (12,2 m) high ceilings
- Requires lower starting pressures than MX8500 K14 (202) ESFR pendent
- Approved for up to 45 ft (13,7 m) ceilings with one row of in-rack sprinklers
- Available in 165° F and 205° F temperature ratings

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹																
ceiling height (ft) >	45'					40'				35'			32'	30'		25'
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	25'	20'	20'
Class I-IV Commodity	1600	1600	1600	1600	1600	1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193
Cartoned Nonexpanded Plastic	1600	1600	1600	1600	1600	1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193
Cartoned Expanded Plastic													1307	1193	1193	1193
Exposed Nonexpanded Plastic	1600	1600	1600	1600	1600	1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

² Requires one row of in-rack sprinklers

16.8 (242) K-factor



MX8504, ESFR Dry Pendent

Threaded Part Number:*	61318
Grooved Part Number:*	61304
Technical Datasheet:	FX_062613
NPT Thread/Grooved:	1-1/2 in

- Protects up to 35 ft (10,7 m) high piled storage without using in-rack sprinklers in buildings with 40 ft (12,2 m) high ceilings
- Available in 165° F and 205° F temperature ratings
- Includes two dry sprinkler insulation boots (p/n 19330M/W)
- INSTALL ON WET SYSTEMS ONLY (not approved for dry/preaction systems)

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹																
ceiling height (ft) >	45'					40'				35'			32'	30'		25'
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	25'	20'	20'
Class I-IV Commodity						1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193
Cartoned Nonexpanded Plastic						1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193
Cartoned Expanded Plastic													1307	1193	1193	1193
Exposed Nonexpanded Plastic						1454	1454	1454	1454	1454	1454	1454	1307	1193	1193	1193

*Standard length is 36-1/2". Also available in lengths of 18-1/2", 24-1/2", and 30-1/2".

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

22.4 (320) K-factor



MX8506, ESFR Pendent

Base Part Number:	61328
Technical Datasheet:	FX_081612
NPT Thread:	1 in

- Protects up to 40 ft (12,2m) high piled storage without using in-rack sprinklers with ceilings up to 45 ft (13,7 m)
- May reduce or eliminate the need for a fire pump
- Available in 165° F and 205° F temperature ratings

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹															
ceiling height (ft) >	45'					40'				35'			30'		25'
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	20'	20'
Class I-IV Commodity	1701	1701	1701	1701	1701	1701	1701	1701	1701	1591	1591	1591	1344	1344	1344
Cartoned Nonexpanded Plastic	1701	1701	1701	1701	1701		1701	1701	1701	1591	1591	1591	1344	1344	1344
Cartoned Expanded Plastic						1901	1901	1901	1701	1591	1591	1591	1344	1344	1344

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

Early Suppression Fast Response (ESFR) Sprinklers

25.2 (363) K-factor



MX8510, ESFR Pendent

Base Part Number:	61329
Technical Datasheet:	FX_100102
NPT Thread:	1 in

- Protects up to 40 ft (12,2m) high piled storage without using in-rack sprinklers with ceilings up to 45 ft (13,7 m)
- May reduce or eliminate the need for a fire pump
- cULus Listed with deflector installed 6-18 in (102-330 mm) below ceiling for Ceiling heights up to 40 feet (6-14 in down for up to 45 ft ceiling heights)
- Available in 165°F and 205°F temperature ratings

NFPA 13 - Required Minimum Flow (GPM) - Single-Row, Double-Row, and Multi-Row Rack Storage (without solid shelves) ¹																
ceiling height (ft) >	45'					40'					35'			30'		25'
storage height (ft) >	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	20'	20'	
Class I-IV Commodity	1913	1913	1913	1913	1913	1512	1512	1512	1512	1352	1352	1352	1171	1171	1171	
Cartoned Nonexpanded Plastic	1913	1913	1913	1913	1913	1512	1512	1512	1512	1352	1352	1352	1171	1171	1171	
Exposed Nonexpanded Plastic						2139	2139	2139								

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

28.0 (404) K-factor



MX8514, ESFR Pendent

Base Part Number - UL:	61331
Base Part Number - FM:	61986
Technical Datasheet:	FX_010715
NPT Thread:	1 in

- FM Approval protects up to 55 ft (16,7 m) high storage facilities with up to 50 ft (15,2 m) high-piled storage, without using in-rack sprinklers. 8 ft (2,4 m) aisle width required.
- UL Listing protects up to 48 ft (14,6 m) high storage facilities with up to 43 ft (13,1 m) high-piled storage, without using in-rack sprinklers. 6 ft (1,8 m) aisle width required.
- Available in 165°F and 205°F temperature ratings.

FM - Required Minimum Flow (GPM) - Single-Row and Double-Row Rack Storage (without solid shelves) ¹																												
ceiling height (ft) >	55'						50'						45'				40'				35'		30'		25'			
storage height (ft) >	50'	45'	40'	35'	30'	25'	20'	45'	40'	35'	30'	25'	20'	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	20'	
Class I-IV Commodity	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254
Cartoned Nonexpanded Plastic	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254	2254

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (9)

NFPA 13 - Required Minimum Flow (GPM) - Single-Row and Double-Row Rack Storage (without solid shelves) ¹																						
ceiling height (ft) >	48'						45'						40'				35'			30'		25'
storage height (ft) >	43'	40'	35'	30'	25'	20'	40'	35'	30'	25'	20'	35'	30'	25'	20'	30'	25'	20'	25'	20'		
Class I-IV Commodity	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988		
Cartoned Nonexpanded Plastic	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988	1988		

¹ Required flow per sprinkler calculated using $Q=K^*(\sqrt{p})$ multiplied by number of design sprinklers (12)

Storage Sprinkler Quick Reference Guide

Control Mode Density Area (CMDA) Sprinklers

11.2 (161) K-factor



MX8530, Standard Response ELO Upright

Base Part Number:	61333
Technical Datasheet:	FX_010692
Response:	Standard
Element:	Glass Bulb
NPT Thread:	3/4 in

Example Density	Std CMDA Spk Spacing	(Q) Flow Rate / Sprinkler	(P) Starting Pressure	Example Water Demand (2,000 ft ² design area)
0.3 gpm/ft ²	100 ft ²	30 gpm	7.2 psi	600 gpm
0.4 gpm/ft ²	100 ft ²	40 gpm	12.8 psi	800 gpm
0.5 gpm/ft ²	100 ft ²	50 gpm	19.9 psi	1,000 gpm
0.6 gpm/ft ²	100 ft ²	60 gpm	28.7 psi	1,200 gpm
0.7 gpm/ft ²	100 ft ²	70 gpm	39.1 psi	1,400 gpm
0.8 gpm/ft ²	100 ft ²	80 gpm	51.0 psi	1,600 gpm

11.2 (161) K-factor



MX8531, Quick Response ELO Upright

Base Part Number:	61334
Technical Datasheet:	FX_120699
Response:	Quick
Element:	Glass Bulb ¹
NPT Thread:	3/4 in

¹Also available with fusible link (VK533-p/n 13978)
- UL Listed ONLY

Example Density	Std CMDA Spk Spacing	(Q) Flow Rate / Sprinkler	(P) Starting Pressure	Example Water Demand (2,000 ft ² design area)
0.3 gpm/ft ²	100 ft ²	30 gpm	7.2 psi	600 gpm
0.4 gpm/ft ²	100 ft ²	40 gpm	12.8 psi	800 gpm
0.5 gpm/ft ²	100 ft ²	50 gpm	19.9 psi	1,000 gpm
0.6 gpm/ft ²	100 ft ²	60 gpm	28.7 psi	1,200 gpm
0.7 gpm/ft ²	100 ft ²	70 gpm	39.1 psi	1,400 gpm
0.8 gpm/ft ²	100 ft ²	80 gpm	51.0 psi	1,600 gpm

11.2 (161) K-factor



MX8536, Standard Response ELO Pendant

Base Part Number:	61337
Technical Datasheet:	FX_072213
Response:	Standard
Element:	Glass Bulb
NPT Thread:	3/4 in

Example Density	Std CMDA Spk Spacing	(Q) Flow Rate / Sprinkler	(P) Starting Pressure	Example Water Demand (2,000 ft ² design area)
0.3 gpm/ft ²	100 ft ²	30 gpm	7.2 psi	600 gpm
0.4 gpm/ft ²	100 ft ²	40 gpm	12.8 psi	800 gpm
0.5 gpm/ft ²	100 ft ²	50 gpm	19.9 psi	1,000 gpm
0.6 gpm/ft ²	100 ft ²	60 gpm	28.7 psi	1,200 gpm
0.7 gpm/ft ²	100 ft ²	70 gpm	39.1 psi	1,400 gpm
0.8 gpm/ft ²	100 ft ²	80 gpm	51.0 psi	1,600 gpm

11.2 (161) K-factor



MX8377, Quick Response ELO Pendant

Base Part Number:	61278
Technical Datasheet:	FX_030993
Response:	Quick
Element:	Glass Bulb
NPT Thread:	3/4 in

Example Density	Std CMDA Spk Spacing	(Q) Flow Rate / Sprinkler	(P) Starting Pressure	Example Water Demand (2,000 ft ² design area)
0.3 gpm/ft ²	100 ft ²	30 gpm	7.2 psi	600 gpm
0.4 gpm/ft ²	100 ft ²	40 gpm	12.8 psi	800 gpm
0.5 gpm/ft ²	100 ft ²	50 gpm	19.9 psi	1,000 gpm
0.6 gpm/ft ²	100 ft ²	60 gpm	28.7 psi	1,200 gpm
0.7 gpm/ft ²	100 ft ²	70 gpm	39.1 psi	1,400 gpm
0.8 gpm/ft ²	100 ft ²	80 gpm	51.0 psi	1,600 gpm


16.8 (242) K-factor



MX8580, Standard Response CMDA Upright

Base Part Number:	61345
Technical Datasheet:	FX_041904
Response:	Standard
Element:	Glass Bulb
NPT Thread:	3/4 in

Example Density	Std CMDA Spk Spacing	(Q) Flow Rate / Sprinkler	(P) Starting Pressure	Example Water Demand (2,000 ft ² design area)
0.45 gpm/ft ²	100 ft ²	45 gpm	7.2 psi	900 gpm
0.5 gpm/ft ²	100 ft ²	50 gpm	8.9 psi	1,000 gpm
0.6 gpm/ft ²	100 ft ²	60 gpm	12.8 psi	1,200 gpm
0.7 gpm/ft ²	100 ft ²	70 gpm	17.4 psi	1,400 gpm
0.8 gpm/ft ²	100 ft ²	80 gpm	22.7 psi	1,600 gpm

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov