

EFS Non-Sealed Tumbler Switches

Explosionproof, Dust-Ignitionproof

Malleable Iron Body and Cover. Furnished with Internal Ground Screw.

NEC:

Class I, Division 1 and 2, Groups C, D
Class II, Division 1 and 2, Groups E, F, G
Class III

NEMA 7CD, 9EFG

Applications

- Designed to prevent arcing of enclosed switches in ignitable atmospheres during connect and disconnect operation of lighting and light power loads.
- For use in classified areas where ignitable vapors, gases or highly combustible dusts are present.
- For installation in:
 - Chemical and petrochemical plants
 - Refineries
 - Other process industries

Features

- Enclosures have external mounting lugs for ease of mounting.
- Smooth, rounded integral bushing in each hub protects conductor insulation.
- Enclosures furnished with internal ground screw.
- 20 Amp and 30 Amp units available for use with 120-277 Vac.
- Smooth ground mating surfaces assure flame-tight joint between cover and mounting enclosure.
- Stainless steel hex head cap screws for attaching cover to mounting enclosure.
- Choice of front-operating or side rocker arm handle—each may be locked in ON or OFF position.
- Each handle has close-tolerance threaded stainless steel shaft to meet explosionproof requirements.
- Enclosures furnished with internal ground screw.

Options

- 1- or 2-gang copperfree (4/10 of 1% max.) aluminum bodies and covers available. Add suffix – **A**.
- **NPBRKT** nameplate mounting bracket to make circuit description/identification easy.
 - Pre-drilled holes in bottom of bracket allow direct mounting to control stations with existing cover bolts.
 - Pre-drilled holes in middle of bracket allow mounting of customer's circuit identification nameplate; epoxy glue may also be used for mounting (phenolic nameplate not included).
 - Bracket eliminates costly field installation of drilling and tapping to accommodate circuit identification nameplate.
 - Brackets fit side-by-side on 2-, 3- and 4-gang boxes and 3-devices.

Standard Materials

- Body and cover: malleable iron
- Handle: nylon 6/6
- Optional nameplate mounting bracket: corrosion resistant stainless steel

Standard Finishes

- Tumbler switch body: triple-coat—(1) zinc electroplate, (2) chromate, and (3) epoxy powder coat

NEC Certifications and Compliances

- UL Standards: UL 894, UL 1203
- UL Listed: E10523, E81751

Ordering Information for "Custom" Units

- Devices, covers and bodies may be ordered separately so that a different EFS switch may be used in each gang.
- Order components separately as follows:
 - (1) select body catalog number,
 - (2) select cover catalog number, and



Front Operated



Rocker Arm Operated

Illustrated Features



Handles may be locked in ON or OFF position

- (3) select switch or switch assembly catalog number (1-pole, 2-pole, 3-way or 4-way available in listings).

How to Order Hub Arrangements

- Simply send sketch indicating sizes and locations for brazed hubs on body or bodies selected from catalog listings. Orient sketch so that cover opening faces front and mounting lugs face upward and downward (box wall opposite cover should be referred to as the *back* of box).

Bodies and Hubs Available

- Tumbler switches may be ordered in single thru five gang deep malleable iron blank bodies with brazed hubs as specified at any location.
- Tumbler switches may be ordered with tandem malleable iron boxes with additional brazed hubs as specified.
- Standard malleable iron single and 2-gang tumbler switches may be ordered with additional brazed hubs as specified.
- Single and 2-gang tumbler switches may be ordered with aluminum boxes with additional brazed hubs as specified.

Related Products

- For classified-location push button, pilot light and selector switch control stations, see *EFD/EFDB and EDS Control Stations and Pilot Lights*.



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	Hub Size (Inches)	Switch	Catalog Number ①	
			Dead-End	Feed-Thru
1-Gang				
 Dead-End	20 Amp — 120-277 Vac ②			
	1/2	1-Pole	EFS150-F1	EFSC150-F1
	1/2	2-Pole	—	EFSC150-F2
	1/2	3-Way	EFS150-F3W	EFSC150-F3W
	1/2	4-Way	EFS150-F4W	EFSC150-F4W
	3/4	1-Pole	EFS175-F1	EFSC175-F1
	3/4	2-Pole	EFS175-F2	EFSC175-F2
	3/4	3-Way	EFS175-F3W	EFSC175-F3W
	3/4	4-Way	EFS175-F4W	EFSC175-F4W
	 Feed-Thru	30 Amp — 120-277 Vac ③		
3/4		1-Pole	EFS175-F13	EFSC175-F13
3/4		2-Pole	EFS175-F23	EFSC175-F23
2-Gang				
 Dead-End	20 Amp — 120-277 Vac ②			
	1/2	1-Pole	EFS250-F1	EFSC250-F1
	1/2	2-Pole	—	EFSC250-F2
	1/2	3-Way	—	EFSC250-F3W
	1/2	4-Way	—	EFSC250-F4W
	3/4	1-Pole	EFS275-F1	EFSC275-F1
	3/4	2-Pole	—	EFSC275-F2
	3/4	3-Way	—	EFSC275-F3W
	3/4	4-Way	—	EFSC275-F4W
	 Feed-Thru	1	2-Pole	EFS210-F2
1		3-Way	EFS210-F3W	EFSC210-F3W
1		4-Way	EFS210-F4W	EFSC210-F4W
30 Amp — 120-277 Vac ③				
3/4		1-Pole	EFS275-F13	EFSC275-F13
3/4		2-Pole	—	EFSC275-F23
1	2-Pole	EFS210-F23	EFSC210-F23	

① For aluminum backbox and cover, add suffix -A.
 ② 20 Amp — 1 HP at 120 Vac and 2 HP at 240 Vac.
 ③ 30 Amp — 2 HP at 120 Vac or 240 Vac.



CONTROLS: NEC/CEC EXPLOSIONPROOF CONTROL STATIONS AND SWITCHES

EFS Non-Sealed Rocker Tumbler Switches

Arm Operated. Explosionproof, Dust-Ignitionproof

Furnished with Internal Ground Screw.

NEC:

Class I, Division 1 and 2, Groups C, D
 Class II, Division 1 and 2, Groups E, F, G
 Class III
 NEMA 7CD, 9EFG

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CONTROLS: NEC/CEC EXPLOSIONPROOF CONTROL STATIONS AND SWITCHES

	Hub Size (Inches)	Switch	Dead-End	Catalog Number	Feed-Thru
1-Gang					
20 Amp – 120-277 Vac ①					
 Dead-End	1/2	1-Pole	EFS150-R1	EFSC150-R1	
	1/2	2-Pole	—	EFSC150-R2	
	1/2	3-Way	EFS150-R3W	EFSC150-R3W	
	1/2	4-Way	EFS150-R4W	EFSC150-R4W	
 Feed-Thru	3/4	1-Pole	EFS175-R1	EFSC175-R1	
	3/4	2-Pole	EFS175-R2	EFSC175-R2	
	3/4	3-Way	EFS175-R3W	EFSC175-R3W	
	3/4	4-Way	EFS175-R4W	EFSC175-R4W	
2-Gang					
20 Amp – 120-277 Vac ①					
 Dead-End	1/2	1-Pole	EFS250-R1	EFSC250-R1	
	1/2	2-Pole	—	EFSC250-R2	
	1/2	3-Way	—	EFSC250-R3W	
	1/2	4-Way	—	EFSC250-R4W	
 Feed-Thru	3/4	1-Pole	EFS275-R1	EFSC275-R1	
	3/4	2-Pole	—	EFSC275-R2	
	3/4	3-Way	—	EFSC275-R3W	
	3/4	4-Way	—	EFSC275-R4W	
	1	2-Pole	EFS210-R2	EFSC210-R2	
	1	3-Way	EFS210-R3W	EFSC210-R3W	
	1	4-Way	EFS210-R4W	EFSC210-R4W	

① 20 Amp – 1 HP at 120 Vac and 2 HP at 240 Vac.

EFS Non-Sealed Tumbler Switches

Switch Covers and Switches. Explosionproof, Dust-Ignitionproof

Furnished with Internal Ground Screw.

NEC:

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 Class III
 NEMA 7CD, 9EFG

	Switch Type	Catalog Number			
		20 Amp, 120–277 Vac ①		30 Amp, 120–277 Vac ②	
		Malleable Iron	Aluminum	Malleable Iron	Aluminum
 <p>Front Cover</p>	1-Pole	EFKF12Q	EFKF12AQ	EFKF12Q	EFKF12QA
	2-Pole	EFKF12Q	EFKF12AQ	EFKF12Q	EFKF12QA
	3-Way	EFKF34WQ	EFKF34WAQ	EFKF34WQ	EFKF34WQA
	4-Way	EFKF34WQ	EFKF34WAQ	—	—
 <p>Rocker Cover</p>	1-Pole	EFKR12Q	—	EFKR12Q	—
	2-Pole	EFKR12Q	—	EFKR12Q	—
	3-Way	EFKR34WQ	—	EFKR34WQ	—
	4-Way	EFKR34WQ	—	—	—
 <p>Non-Factory Sealed Switch</p>	1-Pole	EFSFR1Q	—	EFSFR13Q	—
	2-Pole	EFSFR2Q	—	EFSFR23Q	—
	3-Way	EFSFR3WQ	—	EFSFR3W3Q	—
	4-Way	EFSFR4WQ	—	—	—


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CONTROLS: NEC/CEC EXPLOSIONPROOF CONTROL STATIONS AND SWITCHES

① 20 Amp Switches 1 HP at 120 Vac and 2 HP at 240 Vac.

② 30 Amp Switches 2 HP at 120 Vac or 240 Vac.

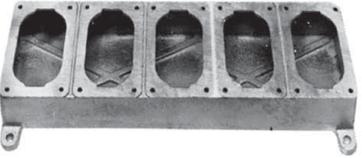
EFS Non-Sealed Tumbler Switches

EFD Mounting Bodies

Furnished with Internal Ground Screw.

NEC:

Class I, Division 1 and 2, Groups C, D
 Class II, Division 1 and 2, Groups E, F, G
 Class III
 NEMA 7CD, 9EFG

	Type	Hub Size (Inches)	Catalog Number	
			Malleable Iron	Aluminum
1-Gang				
	Dead-End	1/2	EFD150NLQ	EFD150ANLQ
		3/4	EFD175NLQ	EFD175ANLQ
		1	EFD110NLQ	EFD110ANLQ
	Feed-Thru	1/2	EFDC150NLQ	EFDC150ANLQ
		3/4	EFDC175NLQ	EFDC175ANLQ
		1	EFDC110NLQ	EFDC110ANLQ
2-Gang				
	Dead-End	1/2	EFD250NLQ	EFD250ANLQ
		3/4	EFD275NLQ	EFD275ANLQ
		1	EFD210NLQ	EFD210ANLQ
	Feed-Thru	1/2	EFDC250NLQ	EFDC250ANLQ
		3/4	EFDC275NLQ	EFDC275ANLQ
		1	EFDC210NLQ	EFDC210ANLQ
Tandem ①				
	Dead-End	1/2	EFDT50NLQ	—
		3/4	EFDT75NLQ	—
		1	EFDT10NLQ	—
	Feed-Thru	1/2	EFDC250NLQ	—
		3/4	EFDC275NLQ	—
		1	EFDC210NLQ	—
Blank Bodies for Brazed Hubs				
	1-Gang		EFD1NL	—
	2-Gang		EFD2NL	—
	3-Gang		EFD3NL	—
	4-Gang		EFD4NL	—
	5-Gang		EFD5NL	—

Construct complete catalog numbers per EFD Cast Device Boxes Ordering Information on following page. Hubs will be located in center of walls and evenly spaced unless otherwise specified. Where spacings are critical, submit sketch showing exact spacing requirements.

① For tandem bodies, external seals must be installed within 1.5 meters (5 feet) of each conduit entrance for Class I, Groups C and D.

EFS Non-Sealed Tumbler Switches

Cast Device Box Ordering Information. Blank Bodies for Brazed Threaded Hubs

Single, Two, Three, Four and Five Gang Boxes. Brazed Threaded Hubs for Rigid Conduit, 1/2" thru 1"; Brazed Union Hubs, 1/2" thru 1".

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Determine catalog number as follows:

- (1) Select EFD device box catalog number;
- (2) Select "Standard Hub Arrangement Diagram" number; and
- (3) Select symbols that represent hub sizes from "Symbol Table." (Use "0" where no hub is required, and separate the various divisions of the complete catalog number by dashes.)

Example

The blank body device box selected is EFD3NL and the hub arrangement is diagram #8. Hub "a" is to be 3/4" brazed threaded; hub "b", 1" brazed threaded; hub "c", 3/4" brazed threaded; hub "d", no hub is required; and hub "e", 1" brazed union.

The complete catalog number will be: **EFD-3NL-8-23203E**

If a "Standard Hub Arrangement" is not suitable for the application, or when hubs are to be more accurately spaced, submit sketch locating hubs (1) from centerlines of walls and (2) from outside back of box (or from mounting lug surface if lugs are supplied).

All hubs will be located in centerlines of walls and evenly spaced unless otherwise specified.

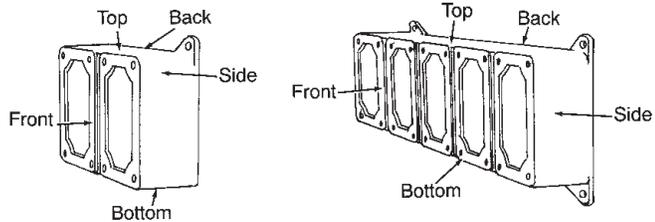
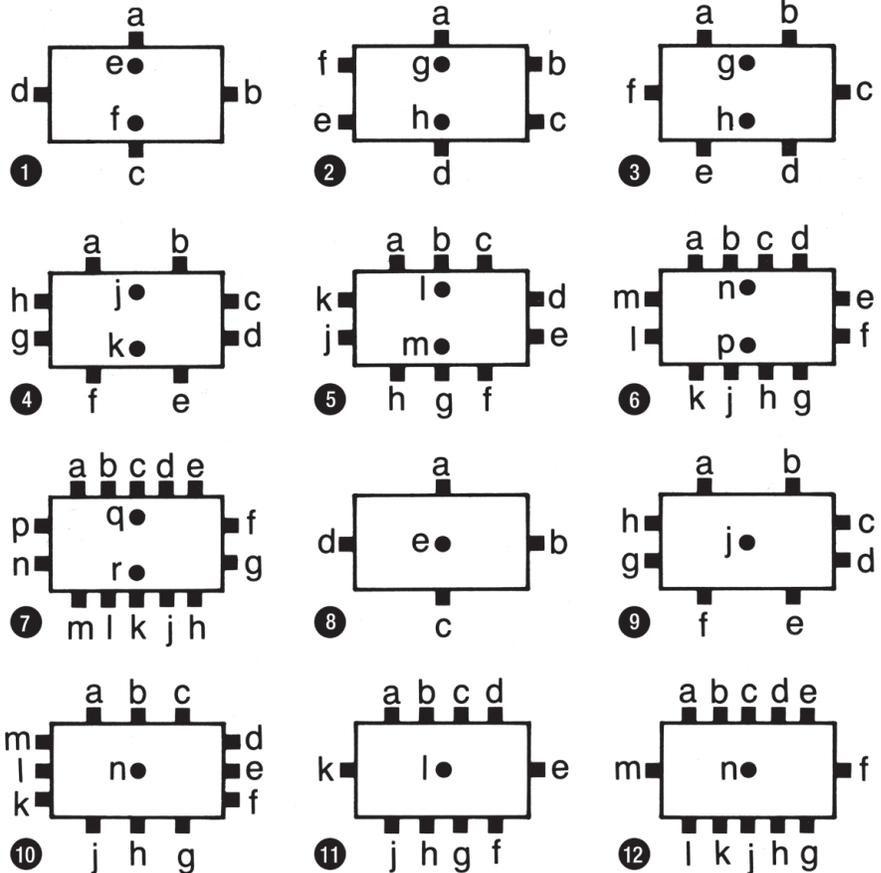
Symbol Table

Hub Size (Inches)	Brazed Threaded Hub Symbol	Brazed Union Hub Symbol
Blank	0	0
1/2	1	1E
3/4	2	2E
1	3	3E

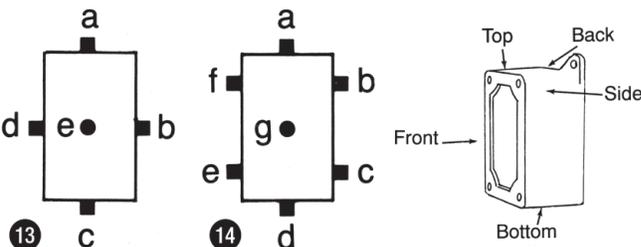
Standard Hub Arrangement Diagrams

Hub "a" is always TOP of box

2-, 3-, 4- and 5-Gang (Front View)



1-Gang (Front View)



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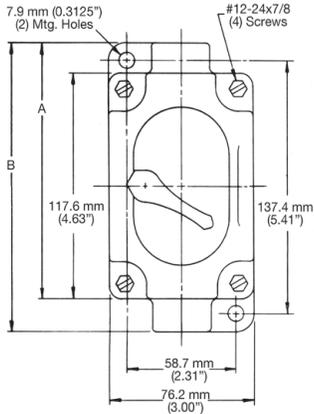
CONTROLS: NEC/CEC EXPLOSIONPROOF CONTROL STATIONS AND SWITCHES

EFS Non-Sealed Tumbler Switches

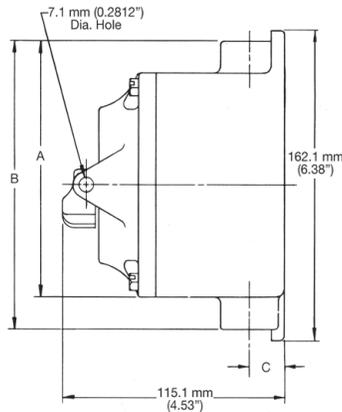
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Dimensions in Millimeters (Inches)

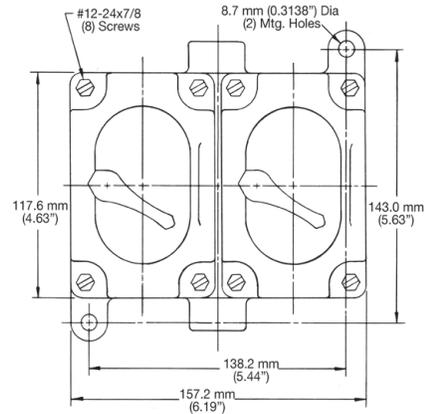
Front Operated Tumbler Switches



Front — 1-Gang



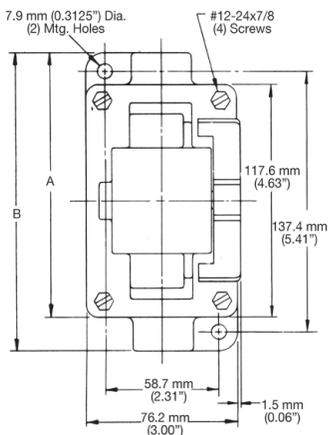
Side



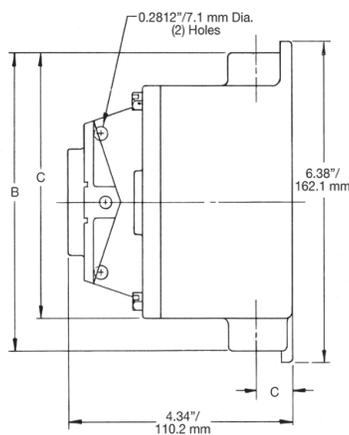
Front — 2-Gang

Hub Size (Inches)	Dimensions in Millimeters (Inches)		
	A	B	C
1/2 and 3/4	136.7 (5.38)	155.7 (6.13)	19.8 (0.78)
1	139.7 (5.50)	160.3 (6.31)	23.9 (0.94)

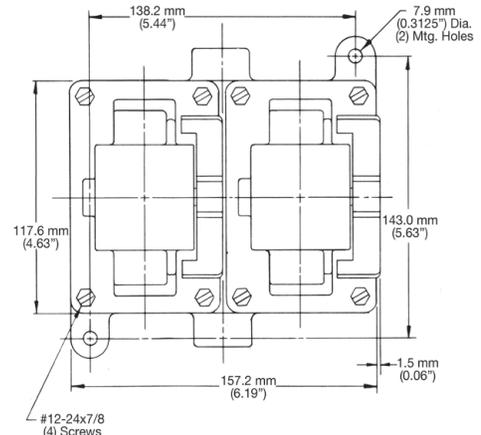
Rocker Arm Operated Tumbler Switches



Front — 1-Gang



Side



Front — 2-Gang

Hub Size (Inches)	Dimensions in Millimeters (Inches)		
	A	B	C
1/2 and 3/4	136.7 (5.38)	155.7 (6.13)	19.8 (0.78)
1	139.7 (5.50)	160.3 (6.31)	23.9 (0.94)

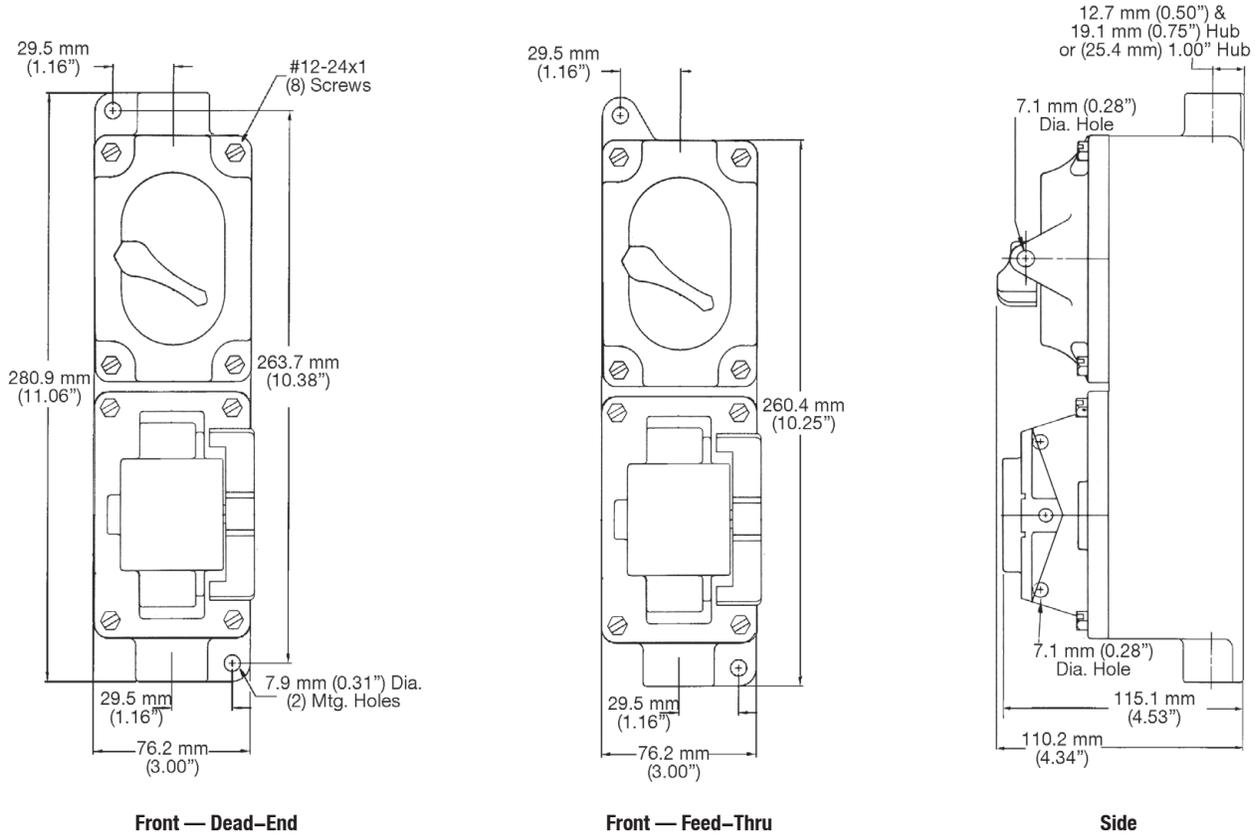
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NEC:

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Dimensions in Millimeters (Inches)

Tandem



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