

Switching Devices

Safety Switches

Safety Switch Selection Guide

Type	Voltage	Fuse Type		Fuse Class	Ampere Rating	Number of Poles ^③	Enclosure Type		Type 12 ^①	Type 4 Painted Steel	Type 4X Stainless Steel	Type 4X Non Metallic	NEMA 7/9 Hazardous Location
							Type 1	Type 3R					
Air Conditioning Disconnect	Max. 240Vac	Fusible	Cartridge	H	30 and 60	2	—	Yes	—	—	—	—	—
		Non-Fusible	—	—	60	2	—	Yes	—	—	—	—	—
	Max. 240Vac	Moulded Case Switch	—	—	60	2	—	Yes	—	—	—	—	—
	Max. 600Vac	Non-Fusible	—	—	30-80	3	—	Yes	—	—	—	—	—
General Duty	Single Throw	Fusible	Plug	—	30	1 and 2	Yes	Yes	—	—	—	—	—
	Max. 240Vac	Cartridge	H	—	30-600	2 and 3	Yes	Yes	—	—	—	—	—
		Non-Fusible	—	—	30-600	2 and 3	Yes	Yes	—	—	—	—	—
Heavy Duty	Single Throw	Fusible	Cartridge	H	30-600	2, 3, and 4	Yes	Yes	Yes ^{①②}	Yes ^②	Yes ^②	—	—
	Max. 600Vac		L	—	800-1200	Up to 1200A	Yes	Up to 1200A	Up to 1200A	400-1200A	Up to 1200A	—	—
	250 Vdc & 600 Vdc	Non-Fusible	—	—	30-1200	2, 3, and 4	Yes	Yes	Yes ^{①②}	Yes ^②	Yes ^②	—	—
									Up to 1200A	400-1200A	Up to 1200A		
6-Pole Motor Circuit^②	Single Throw	Fusible	Cartridge	H	30-200	6	—	Yes	Yes ^{①②}	—	Yes ^②	—	—
	Max. 600Vac	Non-Fusible	—	—	30-200	6	—	Yes	Yes ^{①②}	—	Yes ^②	—	—
Double Throw^③	Max. 600VAV	Fusible	Cartridge	H	30-200	2 and 3	Yes	Yes	Yes ^{①②}	Yes ^②	Yes ^②	—	—
	250Vdc		T (240V)	—	400-1200	3	Yes	Yes	Yes ^{①②}	Yes ^②	400-600A	—	—
			T (600V)	—	400-1200	2, 3, 4, 6	Yes	Yes	Yes ^{①②}	Yes ^②	400-600A	—	—
		Non-Fusible ^③	—	—	30-1200	3	Yes	Yes	Up to 400A	400-600A	Up to 200A	—	—
Enclosed Rotary Switches	Max. 600Vac	Non-Fusible	—	—	30-80	3			Yes ^①	—	Yes	Yes	—
Hazardous Location Disconnect Switch	Max. 600Vac	Fusible	Cartridge	J	30-100	3			—	—	—	—	Yes
	250Vdc	Non-Fusible	—	—	30-100	3			—	—	—	—	Yes
Enviroline All Stainless^②	Single Throw	Fusible	Cartridge	H	30-400	2 and 3			—	—	Yes ^②	—	—
	Max. 600Vac/DC	Non-Fusible	—	—	30-400	3			—	—	Yes ^②	—	—
Viewing Window	Single Throw	Fusible	Cartridge	H	30-1200	2, 3, 4, 6	—	—	Yes ^①	Yes	Yes	—	—
	Max. 600Vac/DC	Non-Fusible	—	—	30-1200	2, 3, 4, 6	—	—	Yes ^①	Yes	Yes	—	—
Receptacle (Pin & Sleeve)^②	Single Throw	Fusible	Cartridge	H	30-100	3	—	—	Yes ^{①②}	—	Yes ^②	—	—
	Max. 600Vac/DC	Non-Fusible	—	—	60	3	—	—	Yes ^{①②}	—	Yes ^②	—	—
Quick Connect (Cam & Posi Lok)	Single Throw	Fusible	Cartridge	H	100-600	2, 3, and 4	Yes	Yes	—	—	—	—	—
	Max. 600Vac		L	—	800	2, 3, and 4	Yes	Yes	—	—	—	—	—
	Double Throw	Non-Fusible	—	—	100-800	2, 3, and 4	Yes	Yes	—	—	—	—	—
	Max. 600Vac	w Non-Fusible w Fuse	—	—	—	2, 3, and 4	Yes	Yes	—	—	—	—	—
			Cartridge	H	100-200	2, 3, and 4	Yes	Yes	—	—	—	—	—
			T	—	400-800	2, 3, and 4	Yes	Yes	—	—	—	—	—
Solar	Single Throw	Fusible		R	30-600	1 (3)	—	Yes	Yes ^{①②}	Yes ^②	—	—	—
	Max. 600Vdc	Non-Fusible	—	—	30-600	1 (3)	—	Yes	Yes ^{①②}	Yes ^②	—	—	—

Notes

① Type 12 enclosures (30-1200 amperes) can be field modified to meet Type 3R rainproof requirements when a factory provided drain screw is removed.

② Optional windows also available with type 12 or 4/4X enclosures.

③ Double throw non-fusible 4 pole 30-800A, 6 pole 30-100A.

Product Overview

- Used to open or close a circuit
 - Non-fusible safety switches provide a means to manually connect or disconnect the load from the source
 - Fusible safety switches provide a means to manually open and close a circuit and provide overcurrent protection by means of installed fuses
 - Fusible switches certified for use as service entrance equipment (unless noted)
 - Also commonly referred to as a disconnect switch or disconnect
- Available from 30–1200A
 - All Padlockable
 - Horsepower rated
 - 100% load break rated (unless noted)
 - Non-Fusible switches are 100% continuous duty rated and fusible switches are 80% continuous duty rated per CSA C22.2 No.4

Standards and Certifications

- C22.2 No.4 File #69743
- C22.2 No.14 (Enclosed Rotary) File #162136
- Det Norske Veritas
- ISO 9001:2008
- CSA certified Class I, Div, 1 & 2, Groups B, C & D; Class II, Div 1 & 2, Groups E, G & F; Class III, Div 1 & 2, Zone 1, IIB + H2 for NEMA 7/9.
- Seismic qualified (UBC and CBC) for Heavy Duty 30-800A
- ISO 1400

**Fuse Clips/Class**

Adaptable to Accept the Following Fuse Class

Safety Switch Type	Standard Fuse Class Clips Supplied with Switch	R	J	T
AC Disconnect	H	—	—	—
General Duty	H	30A-600A	400-600A	400-600A
Heavy Duty	H 30-600A L 800-1200A	30A-600A	240V-100-600A 600V-30-600A	200A-800A 1200A
Heavy Duty 6 Pole	H	30A-200A	60A-200A	200A
Double Throw	H 30-200A T 240V-600A-1200A T 600V-400A-800A L 600V-1200A	30A-400A	240V-200A Only 600V-200A-400A	240V-600A-1200A 600V-400A-1200A (Standard)
Enviroline All Stainless & Window	Same as Heavy Duty	Same as Heavy Duty		Same as Heavy Duty
Receptacle (Pin & Sleeve)	H	30A-100A	60A-100A	—
Solar	R	30A - 600A	—	—

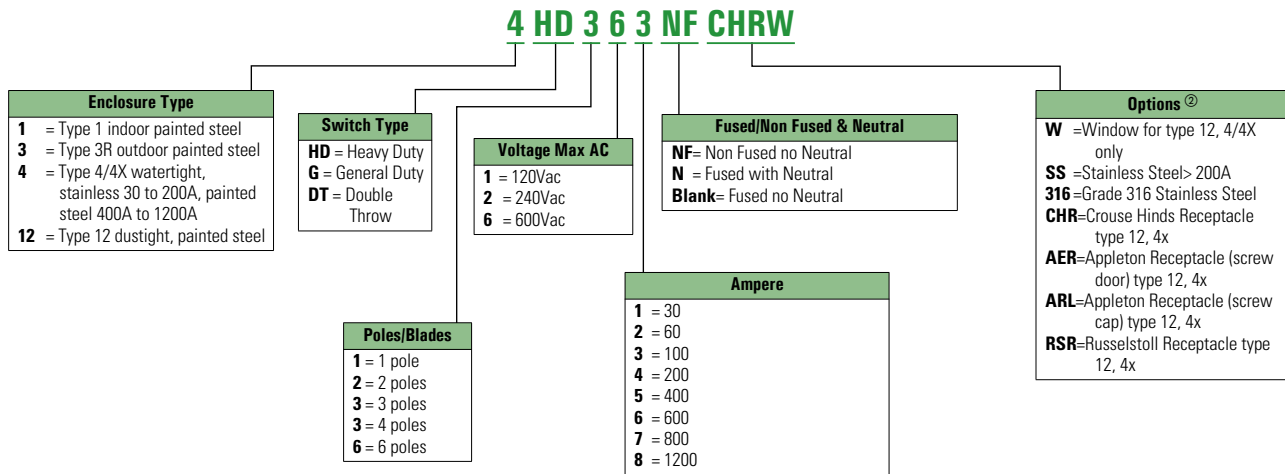
Note: Refer to specific switch technical data page for field adaptation notes.

Switching Devices

Safety Switches

Catalogue Number Selection

Safety Switch

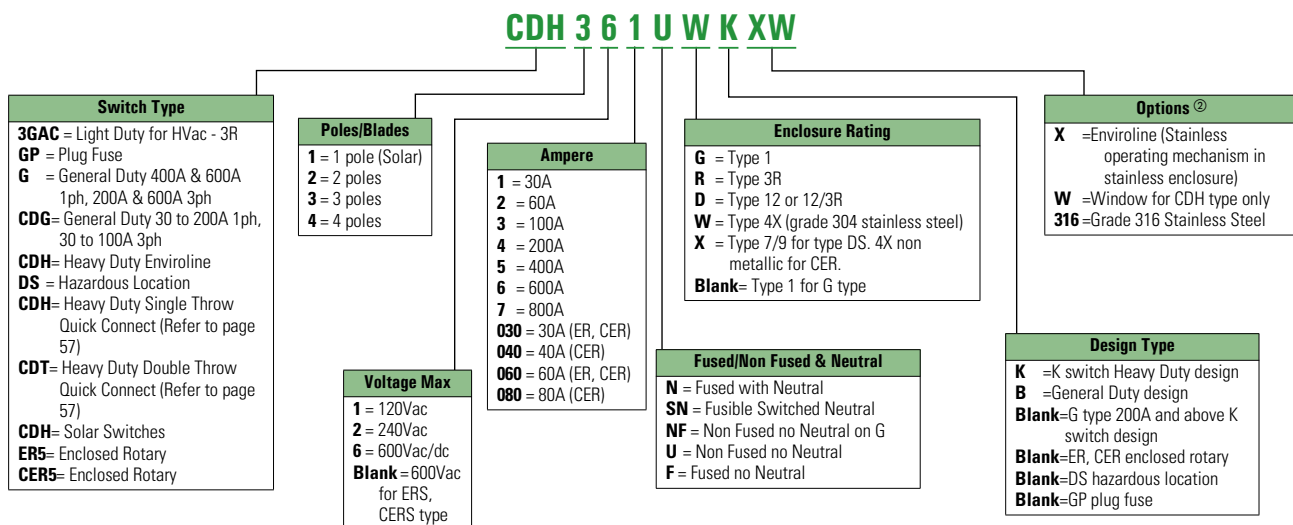


Notes

① Always verify the number of poles and wires required since catalogue numbers may appear in multiple tables.

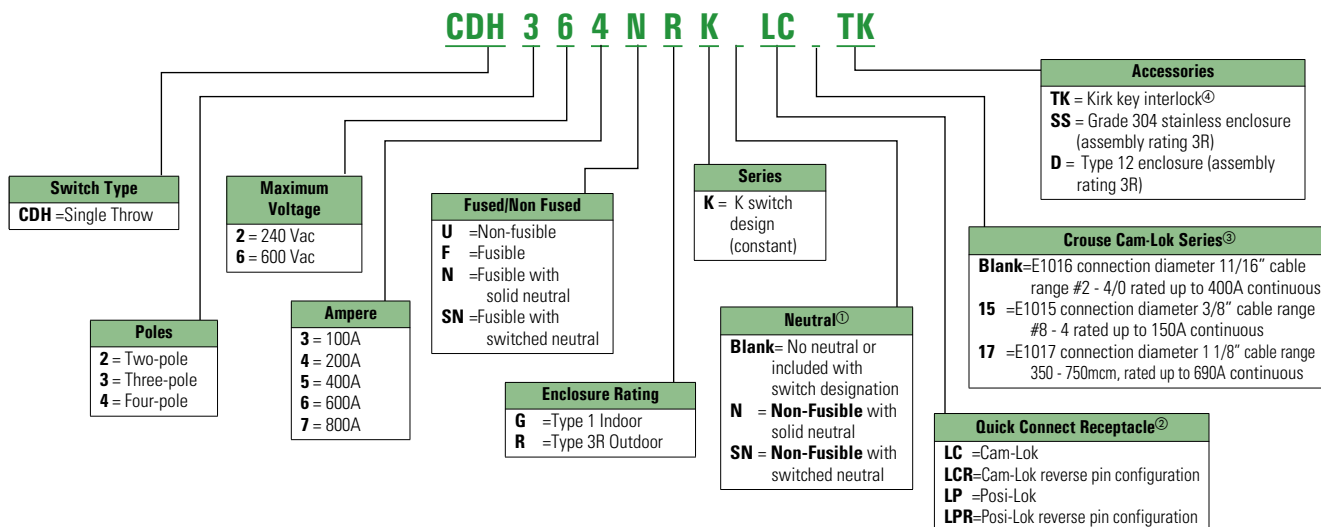
② See **Pages 12** through **14** for additional Flex Centre options.

This table is intended for use in breaking down existing catalogue numbers. It is not intended for building new catalogue numbers.



Catalogue Number Selection

Heavy Duty Single Throw with Cam or Posi-Lok Receptacles

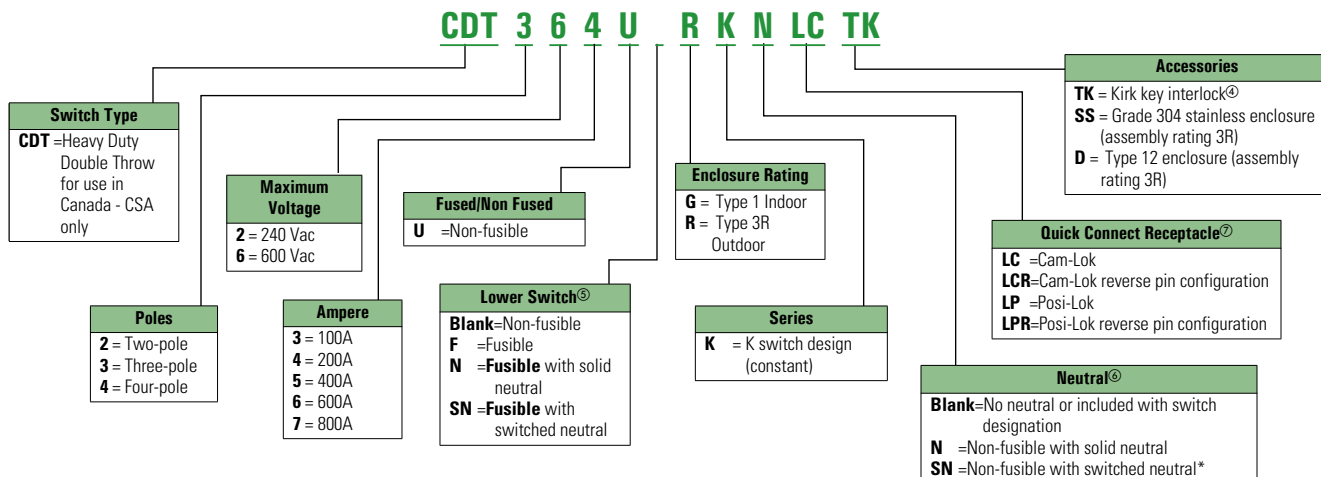


Notes

- ① This field is only used when the switch is non-fusible.
- ② Cam-Lok devices have male ground and neutral and female phase receptacles as standard on single throw
Posi-Lok devices have all female receptacles as standard on single throw
Should a reverse gender configuration be required add suffix "R" to the receptacle designation
An easy way to determine receptacle type: for generator applications male phase receptacles, for temporary load applications female phase receptacles
- ③ E1016 receptacle supplied as standard for all ratings, leave blank unless optional receptacle required
- ④ Provide key interlocking co-ordination as well as customer name, address and phone number for key registration when ordering

Catalogue Number Selection

Heavy Duty Double Throw with Cam or Posi-Lok Receptacles



Notes

- ③ When lower switch is unfused, the switch configuration is consolidated in one letter (ie: "U" not "UU")
A switch with a neutral will have either a solid neutral or a switched neutral, not both
For switched neutral application order 3 pole for single phase and 4 pole for three phase
- ④ This field is only used when the switch is non-fusible.
- ② Cam-Lok devices have female ground and neutral and male phase receptacles as standard on double throw
Posi-Lok devices have all male receptacles as standard on double throw
Should a reverse gender configuration be required add suffix "R" to the receptacle designation
An easy way to determine receptacle type: for generator applications male phase receptacles, for temporary load applications female phase receptacles

Solar Disconnect Switch



Solar Disconnect Switch

Application Description

Used in Photo Voltaic installations. A DC disconnect switch is required ahead of the inverter to isolate the load from the PV source.

The most common application is a **negative grounded PV system**, with the location of the bond usually found at the inverter (transformer type inverters). Per CEC 14-100 only the current carrying ungrounded conductors shall be switched. Thus in a negative-grounded PV system only the positive conductor is switched. The other conductor of the DC circuit must be grounded (like a neutral in an AC system).

Ungrounded DC floating systems would be applied with transformerless inverters. In an ungrounded DC floating system both positive and negative are switched in the disconnect.

Product Description for Negative Grounded Disconnects

- 30 – 600Ampere, 600Vdc single circuit
- Isolated negative ground and equipment ground lug standard
- Factory wired in series for DC, single circuit
- Fusible and Non-Fusible
- Class R fuse clips standard on fusible design
- Heavy Duty K switch design
- Type 3R, 12/3R and 4 painted steel ANSI 61 light grey electrocoat and 4X stainless steel enclosures available

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Features

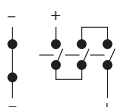
- **“Out of the box solution”**
no additional jumper bars or separate negative ground required
- **Enhanced safety** - fuse is completely de-energized on both line and load side when switch is in off position
- Isolated negative ground terminal included as standard, necessary for grounded PV systems per Section 50 CEC part 1
- Clear polycarbonate dead-front to guard against accidental contact with live parts
- Highly visible line and load warning label specific to PV on door front of switch
- Visibly marked positive and negative terminal connections
- Additional labels included with switch – “PV System Disconnect”

Product Description for Ungrounded DC Disconnects

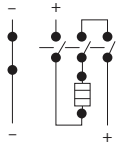
- 30A – 400A, 600Vdc
- 30A - 400A @ 1000Vdc
- Multi-circuit offering
- Both positive (+) and negative (-) are switched
- UL listed to UL98b standard
- CSA/ESA accepted
- Refer to Eaton Publication No. BR00802002E for product offering and technical specifications

Product Selection

Non-Fusible 600Vdc Disconnect for Negative Grounded PV Systems

System	Ampere	Catalogue Number Type 3R	Catalogue Number Type 12/3R ^②	Catalogue Number Type 4X ^③	Lug Capacity Main & Isolated Negative Ground ^④	Equipment Ground Lug
	30	CDH161URKN	CDH161UDKN	CDH161UWKN	#2 - #14 Cu/Al	#4 - #14 Cu/Al
	60	CDH162URKN	CDH162UDKN	CDH162UWKN	#2 - #14 Cu/Al	#4 - #14 Cu/Al
	100	CDH163URKN	CDH163UDKN	CDH163UWKN	1/0 - #14 Cu/Al	#4 - #14 Cu/Al
	200	CDH164URKN	CDH164UDKN	CDH164UWKN	250kcmil - #6 Cu/Al	#2 - #14 Cu/Al
	400	CDH165URKN	CDH165UDKN	CDH165UWKN	(1) 750kcmil - 1/0 or (2) 300kcmil - 1/0 Cu/Al	250kcmil - #6 Cu/Al
	600	CDH166URKN	CDH166UDKN	CDH166UWKN	(1) 750kcmil - 1/0 or (1) 600kcmil - #2 Cu/Al	250kcmil - #6 Cu/Al

Fusible 600Vdc Disconnect for Negative Grounded PV Systems

System	Ampere	Catalogue Number Type 3R	Catalogue Number Type 12/3R ^②	Catalogue Number Type 4X ^③	Lug Capacity Main & Isolated Negative Ground ^④	Equipment Ground Lug
	30	CDH161NRK	CDH161NDK	CDH161NWK	#2 - #14 Cu/Al	#4 - #14 Cu/Al
	60	CDH162NRK	CDH162NDK	CDH162NWK	#2 - #14 Cu/Al	#4 - #14 Cu/Al
	100	CDH163NRK	CDH163NDK	CDH163NWK	1/0 - #14 Cu/Al	#4 - #14 Cu/Al
	200	CDH164NRK	CDH164NDK	CDH164NWK	250kcmil - #6 Cu/Al	#2 - #14 Cu/Al
	400	CDH165NRK	CDH165NDK	CDH165NWK	(1) 750kcmil - 1/0 or (2) 300kcmil - 1/0 Cu/Al	250kcmil - #6 Cu/Al
	600	CDH166NRK	CDH166NDK	CDH166NWK	(1) 750kcmil - 1/0 or (1) 600kcmil - #2 Cu/Al	250kcmil - #6 Cu/Al

Note: For negative grounded multi-circuit (2-6) and 1000Vdc offering, refer to Eaton publication BR00802002E

Non-Fusible 600Vdc 1000Vdc Disconnect for UNGROUNDED DC Floating Systems ^①Fusible 600Vdc 1000Vdc Disconnect for UNGROUNDED DC Floating Systems ^①

Note: Refer to Eaton publication No. BR00802002E for offering and technical specifications.

Notes

^① Available Q4 2012

^② Type 12 enclosures can be field converted to 3R when drain screw removed from end wall of enclosure.

^③ Enclosure Type 4X stainless steel 30A to 200A, Type 4 painted steel enclosure 400A and 600A. For stainless steel enclosures at 400 and 600A add SS to catalogue number suffix.

^④ Field-wiring conductor size shall be determined by referring to CEC Table 2 and Table 4, or NFPA Table 310.16, 75C column for wire size (AWG). Use wire rated for 90C (194F) or higher.

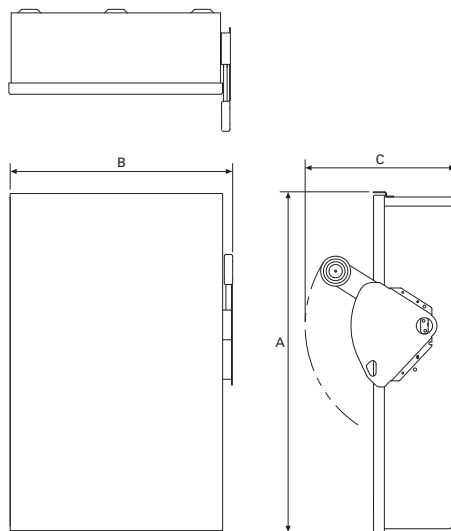
^⑤ Refer to CEC Part 1 Section 50 to calculate current rating of disconnect required.

Dimensions

Approximate Dimensions in Inches (mm)

Type 3R Dimensions

Ampere	A	B	C
30 Non-Fusible	16.35 (415)	8.87 (225)	9.89 (251)
30 Fusible	16.35 (415)	8.87 (225)	9.89 (251)
60 Non-Fusible	16.35 (415)	8.87 (225)	9.89 (251)
60 Fusible	16.35 (415)	8.87 (225)	9.89 (251)
100	22.15 (563)	11.84 (301)	9.89 (251)
200	28.27 (718)	16.66 (423)	11.26 (286)
400	45 (1143)	24.12 (613)	12.39 (315)
600	52.5 (1334)	25.12 (638)	14.07 (357)



Note: Dimensions apply to disconnects for either negative grounded or ungrounded PV systems.

Type 12/3R and 4/4X Dimensions

Ampere	A	B	C
30 Non-Fusible	14.14 (359)	8.76 (223)	10.22 (260)
30 Fusible	19.8 (485)	8.76 (223)	10.22 (260)
60 Non-Fusible	14.14 (359)	8.76 (223)	10.22 (260)
60 Fusible	19.8 (485)	8.76 (223)	10.22 (260)
100	24.95 (634)	11.79 (299)	10.22 (260)
200	35.38 (899)	16.5 (431)	11.63 (295)
400	57.47 (1460)	24.12 (613)	12.43 (316)
600	63 (1600)	36.34 (923)	14.25 (362)

