

Selection Procedure for NQ Merchandised Panelboards

- Review maximum electrical system voltage, ampacity, and available fault current, and determine the type of panelboard is desired (see tables [Table 9.1–Table 9.4](#)).
- Identify type (plug-on or bolt-on) and total quantity of branch circuit breaker poles and panel spaces required (see Digest sections 7 and 9 for catalog numbers).
- Select proper main lug interior (from [Table 9.5](#) or [Table 9.7](#)) or:
 - Select main circuit breaker interior and main circuit breaker adapter kit (from tables 9.6 [NQ Main Circuit Breaker Interiors](#), page 9-12 or [Table 9.8 NQ 14-inch-wide Main Circuit Breaker Interiors](#), page 9-13), based upon the equivalent number of poles and ampere rating.
NOTE: Interiors include solid neutral and are field convertible to top-feed.
 - If a main circuit breaker interior was selected, select a main circuit breaker (or fuse) from pages [page 7-2](#), [page 7-6](#), [page 7-7](#), or [page 7-11](#).
- Select ground bars from tables [Table 9.9](#) or any non-standard neutral bars (i.e., 200% neutral for non-linear loads) from table [Table 9.38](#).
- Select any required sub-feed circuit breakers, sub-feed lugs (SFL), or feed-through lugs (FTL) kits:
 - Sub-feed lugs (SFL) or feed-through lugs (FTL) kits: tables [Table 9.39](#) in the NQ Accessories sections.
 - Any subfeed circuit breakers: [Table 7.1](#) or tables [Table 9.10–Table 9.14](#).
- Determine the total mounting inches required by adding requirements from interior, main circuit breaker, neutrals and ground bars, SFL, FTL, or sub-feed circuit breaker.
- Select enclosure from the tables [Table 9.5–Table 9.9](#), [Table 9.38–Table 9.42](#), [Table 9.19](#), [Table 9.21](#), and [Table 9.23](#).
NEMA Type 1—select box and front (cover) catalog number corresponding to interior catalog number.
NEMA Type 3R, 5, 12—select enclosure. Cover for Type 3R, 5, 12 is included with the enclosure.
- Select the branch circuit breakers to be installed in the panel.
For NQ panelboards use QO circuit breakers from tables [Table 7.1](#), [page 7-13–page 7-14](#), or QOB circuit breakers from [Table 9.10–Table 9.14](#).
- Select options and accessories from tables [Table 9.7–Table 9.43](#).
NOTE: Additional NF and NQ options may be found in the [Supplemental and Obsolescence Digest, Section 4](#).

NQ Merchandised Selection Example

208Y/120 Vac, 3Ø4W, 10 kA SCCR, 225 A, MLO, NEMA Type-1, surface-mount, bolt-on, branch circuit breakers, main sub-feed lugs

Branches	Table No.	Catalog Number	Spaces
(20) 20/1	Table 9.11	(20) QOB120	20
two 40/2	Table 9.11	two QOB240	4
two 30/3	Table 9.11	two QOB330	6
Total 30 spaces			
			Min. Box Height
225 A MLO Interior	Table 9.5	NQ430L2	32 inches
Enclosure (Box)	Table 9.5	MH38	—
Front (Cover)	Table 9.5	NC382S	—
Sub-feed Lugs	Table 9.39 and Table 9.40	NQSFL2	6 inches
Total 38 inches			

NQ Main Lug Interiors—240 Vac, 48 Vdc

Table 9.5: Main Lug Interiors—Accepts plug-on and bolt-on circuit breakers

Circuit Breaker Pole Spaces	Mains Rating	Interior Only (Order Branch Circuit Breakers Separately) [1]	NEMA Type 1 Enclosure			NEMA Type 3R, 5, 12 Enclosure [2]	
			Box 20 in. W x 5.75 in. D [3]	Mono-Flat™ Front [4]	Hinged Front	Enclosure 21 in. W x 6.5 in. D	Height (in.)
		Catalog No. [5]	Catalog No.	Catalog No.	Catalog No.	Catalog No.	
20-inch-wide Cabinet —Single Phase 3-Wire							
18	100	NQ18L1	MH26	NC26 ()	NC26()HR	MH26WP	26
		NQ18L1C					
30		NQ30L1					
		NQ30L1C					
30	225	NQ30L2	MH32	NC32 ()	NC32()HR	MH32WP	32
		NQ30L2C					
		NQ42L2					
		NQ42L2C					
42		NQ72L2	MH38	NC38 ()	NC38()HR	MH38WP	38
		NQ72L2C					
72[6]		NQ84L2					
		NQ84L2C					
84[6]	400	NQ30L4	MH50	NC50V ()	NC50V()HR	MH50WP	50
		NQ30L4C					
42		NQ42L4					
		NQ42L4C					
54		NQ54L4	MH56	NC56V()	NC56V()HR	MH56WP	56
		NQ54L4C					
84[6]		NQ84L4C					
		NQ84L4C					
30	600	NQ30L6C	MH68	NC68V ()	NC68V()HR	MH68WP	68
		NQ30L6C					
42		NQ42L6C					
		NQ42L6C					
54		NQ54L6C	MH56	NC56V()	NC56V()HR	MH56WP	56
		NQ54L6C					
84[6]		NQ84L6C					
		NQ84L6C					
20-inch-wide Cabinet —Three Phase 4-Wire							
18	100	NQ418L1	MH26	NC26 ()	NC26()HR	MH26WP	26
		NQ418L1C					
30		NQ430L1					
		NQ430L1C					
30	225	NQ430L2	MH32	NC32 ()	NC32()HR	MH32WP	32
		NQ430L2C					
		NQ442L2					
		NQ442L2C					
42		NQ454L2	MH38	NC38 ()	NC38()HR	MH38WP	38
		NQ454L2C					
54		NQ472L2					
		NQ472L2C					
72[6]	NQ484L2	MH44	NC44 ()	NC44()HR	MH44WP	44	
	NQ484L2C						
84[6]	NQ84L2C						
	NQ84L2C						
30	400	NQ430L4	MH50	NC50V ()	NC50V()HR	MH50WP	50
		NQ430L4C					
		NQ442L4					
		NQ442L4C					
42		NQ454L4	MH56	NC56V()	NC56V()HR	MH56WP	56
		NQ454L4C					
72[6]		NQ472L4					
		NQ472L4C					
84[6]	600	NQ484L4C	MH68	NC68V ()	NC68V()HR	MH68WP	68
		NQ430L6C					
42		NQ442L6C					
		NQ442L6C					
54		NQ454L6C	MH56	NC56V()	NC56V()HR	MH56WP	56
		NQ454L6C					
84[6]		NQ484L6C					
		NQ484L6C					

Note: All NQ Merchandised Panelboard interiors include the following: a NQFP15 bag of blank filler plates; a neutral bonding strap; an NQ information manual; a NEMA instruction booklet; and a roll of circuit numbers.

[1] Accepts all QO(B) shown in Tables in Sections 7 and 9.

[2] Enclosure includes trim kit.

[3] Embossed mounting holes add a 0.25-inch standoff to back of MH box.

[4] Add "F" for flush mount, "S" for surface mount.

[5] "C" suffix indicates copper bussing.

[6] Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NEC, which allows single panelboard interiors greater than 42 circuits.

[7] When NEMA 3R, 5, or 12 enclosures are selected, an NQ12RDE kit should also be selected. See [NQ Merchandised Accessories](#), page 9-20.

NQ Main Circuit Breaker Interiors—240 Vac, 48 Vdc

Table 9.6: Main Circuit Breaker Interiors—Will accept plug-on and bolt-on circuit breakers

Circuit Breaker Pole Spaces	Mains Rating	Interior Only (Order Branch Circuit Breakers Separately) [8]	Main Circuit Breaker Adapter Kit (Less Circuit Breaker)		NEMA Type 1 Enclosure			NEMA Type 3R, 5, 12 Enclosure [9]	
					Box 20 in. W x 5.75 in. D [10]	Mono-Flat™ Front	Hinged Front	Enclosure 21 in. W x 6.5 in. D	Height (In.)
		Catalog No. [11]	Catalog No.	Circuit Breaker Frame Size [12]	Catalog No.	Catalog No. [13]	Catalog No.	Catalog No.	
20-inch-wide Cabinet [14]—Single Phase 3-Wire									
16[15]	100 back-fed	NQ18L1	—	Select QOB 2-pole or QOB-VH[16]	MH26	NC26 ()	NC26()HR	MH26WP	26
		NQ18L1C	—						
28[15]		NQ30L1	—		MH32	NC32 ()	NC32()HR	MH32WP	32
		NQ30L1C	—						
18	100	NQ18L1	NQMB2HJ	HD, HG, HJ, HL[17] 100 A maximum	MH38	NC38 ()	NC38()HR	MH38WP	38
		NQ18L1C							
		NQ30L1							
30	100	NQ30L1C			MH44	NC44 ()	NC44()HR	MH44WP	44
		NQ30L2C							
30	225	NQ30L2	NQMB2HJ NQMB2Q	HD, HG, HJ, HL[17] or JD, JG, JJ, JL QB,QD,QG,QJ	MH44	NC44 ()	NC44()HR	MH44WP	44
		NQ42L2C							
42	225	NQ42L2C			MH50	NC50 ()	NC50()HR	MH50WP	50
		NQ72L2							
72[18]	225	NQ72L2C			MH56	NC56 ()	NC56()HR	MH56WP	56
		NQ84L2							
84[18]	225	NQ84L2C			MH62	NC62 ()	NC62()HR	MH62WP	62
		NQ30L4	NQMB4LA	LA/LH[19]	MH62	NC62V ()	NC62V()HR	MH62WP	62
30	400	NQ30L4C							
		NQ42L4	NQMB4LA	LA/LH[19]	MH62	NC62V ()	NC62V()HR	MH62WP	62
		NQ42L4C							
54	400	NQ54L4	NQMB4LA	LA/LH[19]	MH68	NC68V ()	NC68V()HR	MH68WP	68
		NQ54L4C							
84[18]	400	NQ84L4C	NQMB4LA	LA/LH[19]	MH80	NC80V ()	NC80V()HR	MH80WP	80
20-inch-wide Cabinet [14]—Three Phase 4-Wire									
15[15]	100 back-fed	NQ418L1	—	Select QOB 3-pole or QOB-VH[16]	MH26	NC26 ()	NC26()HR	MH26WP	26
		NQ418L1C	—						
27[15]		NQ430L1	—		MH32	NC32 ()	NC32()HR	MH32WP	32
		NQ430L1C	—						
18	100	NQ418L1	NQMB2HJ	HD, HG, HJ, HL 100 A maximum	MH38	NC38 ()	NC38()HR	MH38WP	38
		NQ418L1C							
		NQ430L1			MH44	NC44 ()	NC44()HR	MH44WP	44
30		NQ430L1C							
		NQ430L2	NQMB2HJ NQMB2Q	HD, HG, HJ, HL or JD, JG, JJ, JL QB,QD,QG,QJ	MH44	NC44 ()	NC44()HR	MH44WP	44
30	225	NQ430L2C							
		NQ442L2			MH50	NC50 ()	NC50()HR	MH50WP	50
		NQ442L2C							
42		NQ454L2							
54		NQ454L2C			MH56	NC56 ()	NC56()HR	MH56WP	56
		NQ472L2							
		NQ472L2C							
72		NQ484L2			MH62	NC62 ()	NC62()HR	MH62WP	62
		NQ484L2C							
30	400	NQ430L4	NQMB4LA	LA/LH[19]	MH62	NC62V ()	NC62V()HR	MH62WP	62
		NQ430L4C							
		NQ442L4							
42		NQ442L4C							
54		NQ454L4	NQMB4LA	LA/LH[19]	MH68	NC68V ()	NC68V()HR	MH68WP	68
		NQ454L4C							
		NQ472L4	NQMB4LA	LA/LH[19]	MH74	NC74V ()	NC74V()HR	MH74WP	74
		NQ472L4C							
72[18]		NQ484L4C	NQMB4LA	LA/LH[19]	MH80	NC80V ()	NC80V()HR	MH80WP	80
84[18]		NQ484L4C	NQMB4LA	LA/LH[19]	MH80	NC80V ()	NC80V()HR	MH80WP	80

Note: All NQ Merchandised Panelboard interiors include the following: a NQFP15 bag of blank filler plates; a neutral bonding strap; an NQ information manual; a NEMA instruction booklet; and a roll of circuit numbers.

[8] Accepts all QO(B) shown in Tables in Sections 7 and 9.

[9] Enclosure includes trim kit.

[10] Embossed mounting holes add a 0.25 inch standoff to back of MH box.

[11] "C" suffix indicates copper bussing.

[12] Circuit breaker interrupt ratings, see the tables starting on Table 7.46 PowerPact Interrupting Ratings, page 7-31.

[13] Add "F" for flush mount, "S" for surface mount.

[14] For the NQ14-inch-wide panelboard offer, See NQ 14-inch-wide—240 Vac, 48 Vdc, page 9-13.

[15] Pole spaces shown are available for branch circuits, with spaces deducted for the back fed main breaker.

[16] QOB2150VH takes four pole spaces; all other QOB two pole circuit breakers take two pole spaces.

NOTE: Do not select a back-fed main for panels to be "Suitable for use as UL service equipment."

[17] For single phase applications, order a 3-pole breaker. Example: HDL36100.

[18] Use only if the Local Jurisdiction where this panelboard interior is being applied has adopted the 2008 NEC, which allows single panelboard interiors greater than 42 circuits.

[19] For 250 A–400 A applications, order short handle circuit breaker (i.e., LAL36400MB).

Factory Assembled Main Circuit Breakers

400 A and 600 A panelboards, 1Ø or 3Ø

Table 9.15: NQ Panelboard Factory Assembled Interiors - 240 Vac / 48 Vdc Max

Single Phase or Three Phase						
Mains Rating (Amps)			Max. Number of One-Pole Circuit Breakers	Bus Material	Min. Box Depth	
Main Lugs Only	Main Circuit Breaker [48]	Main Switch [48]			Main Lugs Only	Main Circuit Breaker / Switch
100 Max	15–100	70–100	18, 30	Al, Cu	5.75 in.	5.75 in.
225 Max	15–250	110–250	30, 42, 54, 72, 84	Al, Cu	5.75 in.	5.75 in.
400 Max	125–400	300–400	30, 42, 54, 72 [49], 84 [50]	Al, Cu	5.75 in.	5.75 in. / 8.75 in. [51]
600 Max	125–600	450–600	30, 42, 54, 72 [49], 84	Cu	5.75 in.	8.75 in. [51]

Table 9.16: Main Circuit Breaker (PowerPact L-frame - see Tables Table 7.46 PowerPact Interrupting Ratings, page 7-31 and Table 7.47 Common Catalog Numbering System, page 7-31)

Number of Poles	Trip Unit Options	Frame Sizes	Ampacity
3	LI, LSI, Switch	LD, LG, LJ, LL	70–600 A

LA/LH PowerPact H, J, and Q-frame circuit breakers are also available - see Tables Table 7.46 PowerPact Interrupting Ratings, page 7-31 and Table 7.47 Common Catalog Numbering System, page 7-31 and Supplemental Digest Section 3.

Table 9.17: PowerPact L Main Circuit Breaker Cabinet Data

Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces)	Box Height (20 in. W x 8.75 in. D)	
	400 A	600 A [52]
30	62	62
42	62	62
54	68	68
84	80	80

Sub-feed Circuit Breakers

Main lugs or main circuit breaker interior—1Ø or 3Ø.

Maximum 1 circuit breaker per 225 A main lug or 250 A main circuit breaker panelboard, 2 circuit breakers per 400–600 A panelboard.

Table 9.18: Sub-feed Circuit Breaker (PowerPact Q-frame - see Tables Table 7.46 PowerPact Interrupting Ratings, page 7-31 and Table 7.47 Common Catalog Numbering System, page 7-31)

No. of Poles	Ampacity
2	110–225 A
3	110–225 A
Space Only	110–225 A

PowerPact H, J, & L frame circuit breakers are also available - see Tables Table 7.46 PowerPact Interrupting Ratings, page 7-31 and Table 7.47 Common Catalog Numbering System, page 7-31

Table 9.19: Sub-feed Circuit Breaker Cabinet Data

Max. No. of Branch Spaces (Does not include sub-feed circuit breaker spaces)	Box Height (20 in. W x 5.75 in. D)					
	225 A		400 A		600 A	
	Main Lug	Main Circuit Breaker	Main Lug	Main Circuit Breaker	Main Lug	Main Circuit Breaker
30	50	62	74	86	74	Not available with MCB
42	56	68	74	86	80	
54	56	68	80	—	80	
72	62	74	86	—	86	
84	68	80	—	—	—	

Not Available in Type 3R, 5, 12 if subfeed breaker is over 150 A.

Sub-feed Lugs

NOTE: Available on main lug interiors only, 1Ø or 3Ø.

Table 9.20: Sub-feed Wire Range Per Phase

Mains Rating	Incoming	Outgoing
100	one #6-2/0 Al or Cu	one #6-2/0 Al or Cu
225	one 1/0-350 kcmil Al or Cu	one 1/0-350 kcmil Al or Cu
400	one 1/0-750 kcmil Cu only	one 1/0-750 kcmil Cu only

Table 9.21: Sub-feed Lug Cabinet Data

Max. No. of Branch Spaces	Box Height (20 in. W x 5.75 in. D)		
	100 A	225 A	400 A
18	MH26	—	—
30	MH32	MH38	MH50
42	—	MH44	MH50
54	—	MH44	MH50
72	—	MH50	MH62
84	—	MH56	MH68

[48] Factory Assembled Interiors are rated for trip current of Main Breaker / Switch.

[49] Three Phase only.

[50] Copper only.

[51] Deep Box required for PowerPact L Main Circuit Breaker or Switch.

[52] 600 A PowerPact L not available in non-vented (NEMA Type 3R, 5, 12, or 4/4X) applications

NQ Merchandised Accessories

Table 9.38: NQ Merchandised Neutrals

Mains Ampacity	200% Neutral Kit			Copper 100% Neutral Kit		
	Catalog No.	Box Add	Schedule	Catalog No.	Box Add	Schedule
100	NQNL1	no adder	PE-1A	NQN1CU	no adder	PE-1A
225	NQNL2 or NQNL2ACCY[59]			NQN2CU		
400	NQNL4[60]	no adder	PE-1A	NQN6CU	no adder	PE-1A
600	Not Available			NQN6CU		

Table 9.39: NQ Merchandised Sub-feed Lugs, Feed-through Lugs and Sub-feed Breakers

Mains Ampacity	Sub-feed Lugs (N/A in Main Circuit Breaker Interiors)		Feed-through Lugs		Sub-feed Circuit Breaker Kits (breaker not incl.)			
					Single SFB		Two SFB	
	Catalog No.	Schedule	Catalog No.	Schedule	Catalog No.	Schedule	Catalog No.	Schedule
100 A	NQSFL1	PE-1A	100 A not available; use 225 A interior	—	—	—	—	—
225 A	NQSFL2	PE-1A	NQFTL2L[61]	PE-1A	NQSFB2Q or NQSFB2HJ	PE-1A	—	—
			NQFTL2H[62]					
400 A	NQSFL4	PE-1A	NQFTL4L[61]	PE-1A	Use the 2 SFB kit	—	NQSFB4Q or NQSFB4HJ	PE-1A
			NQFTL4H[62]					
600 A	Use FTL		Factory Assembled Only					

NOTE: See Table 9.40 and Table 9.41.

Table 9.40: Box Selection Table: Merchandised NQ Main Lug Panelboards with Accessories

Feature Circuits	Sub-feed Lugs				Feed-through Lugs				Sub-feed Circuit Breakers			
	100 A	225 A	400 A	600 A	100 A	225 A	400 A	600 A	100 A	225 A (one)	400 A (two)	600 A (two)
18	MH26	—	—	Use FTL	—	—	—	Factory Assembled Only	—	—	—	Factory Assembled Only
30	MH32	MH38	MH50	Use FTL	Use 225A Interior	MH38	MH50		—	MH50	MH74	
42	—	MH44	MH50	Use FTL		MH38	MH56		—	MH56	MH74	
72	—	MH50	MH62	Use FTL		MH50	MH68		—	MH62	MH86	
84	—	MH56	MH68	Use FTL		MH56	MH68		—	MH68	^[63]	

Table 9.41: Box Selection Table: Merchandised NQ Vertically Mounted Main Breaker Panelboards w/ Accessories

Feature Circuits	Feed-through Lugs				Sub-feed Circuit Breakers			
	100 A	225 A	400 A	600 A	100 A	225 A (one)	400 A (two)	600 A (two)
18	—	—	—	Factory Assembled Only	—	—	—	Factory Assembled Only
30	—	—	MH62		—	MH62	MH86	
42	—	MH50	MH68		—	MH68	MH86	
72	—	MH62	MH80		—	MH74	^[63]	
84	—	MH68	MH80		—	MH80	^[63]	

NOTE: See Table 9.44 NQ SurgeLogic SurgeLoc Plug-on SPD, page 9-22

Table 9.42: NQ Optional Lugs

Ampacity	AL Compression Lug Kit		CU Mechanical Lug Kit		CU Compression Kit	
	Catalog No.	Lug Wire Range	Catalog No.	Lug Wire Range	Catalog No.	Lug Wire Range
100	NQALV1	one #8–1/0 AWG	NQCUM1	one #6–2/0 AWG	NQCUV1	one #6–1/0 AWG
225	NQALV2	one #4–300 kcmil	NQCUM2	one #6–250 kcmil	NQCUV2	one 2/0–300 kcmil
400	NQALV4	two 2/0–500 kcmil	NQCUM4	one 1/0–750 kcmil two 1/0–350 kcmil	NQCUV4	one 400–700 kcmil
600	NQALV6	two 2/0–500 kcmil	NQCUM6	one 1/0–750 kcmil two 1/0–350 kcmil	NQCUV6	two 250–500 kcmil

^[59] For 225A panel with SFL, FTL, or SFB, use NQNL2ACCY (enclosure size increases by 6 inches). Otherwise, use NQNL2.^[60] Not to be used with SFL, FTL, or SFB. These combinations are factory assembled only.^[61] The final character L indicates the kit is used for Low circuit count interiors 30 and 42.^[62] The final character H indicates the kit is used for High circuit count interiors 54, 72, and 84.^[63] Requires box longer than available box offer.