

CP Technical Data – Switch & Outlet Boxes

Article 314 of the National Electrical Code® (NEC®) covers the installation and use of boxes. The article includes table references that guide the electrician in the selection of the proper size box necessary to safely accommodate electrical service requirements. The box capacity table is reproduced in part from NEC as a quick reference and guide. The NEC should be consulted for complete details.

Cooper Crouse-Hinds products are produced in accordance with the requirements of UL-514-A, UL-514-B, UL-514-C and are classified for fire resistance according to the standard, Fire Tests of Building Construction and Materials, ANSI/UL 263, ASTM E 119 and NFPA 251. This listing is based on products when used in a fire rated (2 HR) wall or ceiling. Cooper Crouse-Hinds steel boxes are listed with U.L. File #E23156 and Cooper Crouse-Hinds nonmetallic boxes are listed with U.L. File #E102328 and U.L. (2 HR. fire rated) File #R9933.

Cooper Crouse-Hinds switch and outlet boxes comply with the requirements of NEMA standard OS-1, NFPA 70-370 and Federal Spec. #W-J-800E.

Under File #E23156, Cooper Crouse-Hinds concentric and “Moon” KO style boxes, the following is stated “Suitable for bonding without any additional bonding means around concentric (or Eccentric) knockouts where used in circuits above or below 250V.”

Cooper Crouse-Hinds NAED/DCI/UPC number is 786189-10 plus the 3-digit product number. On the outlet box 4-digit product number, the NAED/DCI/UPC number is 786189-0 plus the 4-digit product number and for the 5-digit product number, the NAED/DCI/UPC number is 786189 plus the 5-digit number.

Wall thickness on all Steel boxes is 0.0625”

COOPER CROUSE-HINDS SWITCH BOX DETAILS

Knockouts and Pry-outs
Cooper Crouse-Hinds conduit KOs have standard trade size dimensions. KOs are uniform and true for attachment of cable or conduit connectors. Pry-outs for cable entrance are slotted – a twist with screwdriver removes them. KOs and Pry-outs are precision stamped to permit easy removal, but remain sufficiently strong and sturdy when not removed.

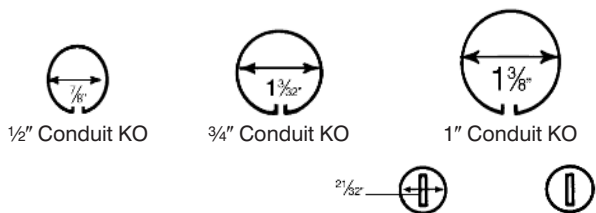


Table 314.16 (A) Metal Boxes

Box Dimension, Inches Trade Size or Type	Min. Cu. In. Cap.	Maximum Number of Conductors						
		No.18	No.16	No.14	No.12	No.10	No.8	No.6
4x1¼ Round or Octagonal	12.5	8	7	6	5	5	4	2
4x1½ Round or Octagonal	15.5	10	8	7	6	6	5	3
4x2½ Round or Octagonal	21.5	14	12	10	9	8	7	4
4x1¼ Square	18.0	12	10	9	8	7	6	3
4x1½ Square	21.0	14	12	10	9	8	7	4
4x2½ Square	30.3	20	17	15	13	12	10	6
4 ¹¹ / ₁₆ x1¼ Square	25.5	17	14	12	11	10	8	5
4 ¹¹ / ₁₆ x2½ Square	29.5	19	16	14	13	11	9	5
4 ¹¹ / ₁₆ x2½ Square	42.0	28	24	21	18	16	14	8
3x2x1½ Device	7.5	5	4	3	3	3	2	1
3x2x2 Device	10.0	6	5	5	4	4	3	2
3x2x2¼ Device	10.5	7	6	5	4	4	3	2
3x2x2½ Device	12.5	8	7	6	5	5	4	2
3x2x2¾ Device	14.0	9	8	7	6	5	4	2
3x2x3½ Device	18.0	12	10	9	8	7	6	3
4x2½x1½ Device	10.3	6	5	5	4	4	3	2
4x2½x1½ Device	13.0	8	7	6	5	5	4	2
4x2½x2½ Device	14.5	9	8	7	6	5	4	2
3¾x2x2½ Masonry Box/Gang	14.0	9	8	7	6	5	4	2
3¾x2x3½ Masonry Box/Gang	21.0	14	12	10	9	8	7	4
FS-Minimum Internal Depth 1¾ Single Cover Gang	13.5	9	7	6	6	5	4	2
FD-Minimum Internal Depth 2¾ Single Cover Gang	18.0	12	10	9	8	7	6	3
FS-Minimum Internal Depth 1¾ Single Cover Gang	18.0	12	10	9	8	7	6	3
FD-Minimum Internal Depth 2¾ Multiple Cover Gang	24.0	16	13	12	10	9	8	4

Table 314.16 (B) Volume Required per Conductor

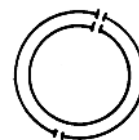
Size of Conductor	Free Space Within Box for Each Conductor
No. 18	1.5 cubic inches
No. 16	1.75 cubic inches
No. 14	2 cubic inches
No. 12	2.25 cubic inches
No. 10	2.5 cubic inches
No. 8	3 cubic inches
No. 6	5 cubic inches

For SI units: one cubic inch = 16.4 cm³.

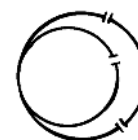
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Cooper Crouse-Hinds 4” sq. drawn boxes feature a ½” and ¾” “inverted” concentric KO – easily removed. Our 4” sq. welded feature our ½” eccentric KO which also features easy removability of both the ½” and ¾” KOs. NOTE: These KOs are suitable for bonding without bonding jumpers around concentric (or eccentric) knockouts where used in circuits above or below 250V.

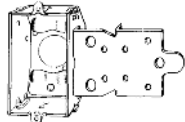


Concentric
½” and ¾” KO

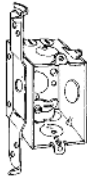


Eccentric
½” and ¾” KO

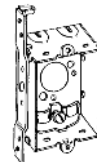
BRACKETS USED ON COOPER CROUSE-HINDS BOXES



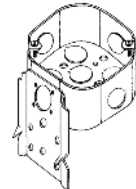
"F" BRACKET
Mounts on face of stud. See catalog number for set back. For wood studs.



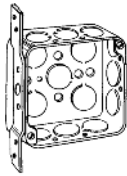
"D" BRACKET
Side mount bracket with set up hook & guide tabs for automatic positioning. Standard bracket set back is 3/8". For wood and metal studs.



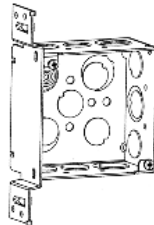
"S" BRACKET
Side mount brackets with set up hook for wood or metal studs. Standard bracket set back is 3/8".



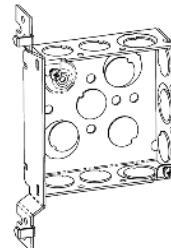
"C" BRACKET
Ceiling box bracket for wood studs.



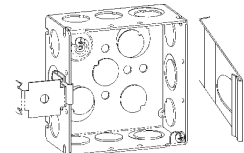
"VS" BRACKET
Plain flat mounted bracket for use on wood or metal studs. No set back.



"VMS" BRACKET
Side bracket for use with wood or metal studs. Provides set up tabs to position on face of stud.



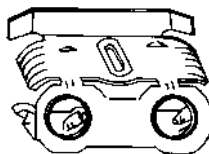
"VP" BRACKET
Side bracket with set up hooks for wood studs.



"SSB" BRACKET
Positions box on either side of a steel stud.

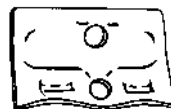
CLAMPS USED ON COOPER CROUSE-HINDS BOXES

Cat. No. TP900



MC-BX

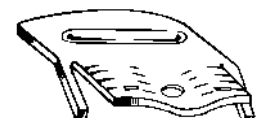
FOR ARMORED & METAL CLAD (MCI) CABLE



NM-1



NM-2

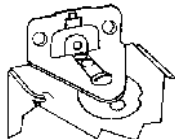


NM-4

FOR NONMETALLIC CABLE

MOUNTING EARS

Cat. No. TP901



ONE SCREW EAR

Mounting ears are available on many of our switch boxes. They are set forward in 1/16" the "old way" position. Two-screw ears are generally used on shallow boxes and one-screw ears on deep boxes.

Cat. No. TP902



TWO SCREW EAR