

NEC Article for Box Fill: Cheat Sheet

Article 314, section 314.16 | summary in our own words | azadtechhub.com

1. Formula

Required volume = sum of all volume allowances. The box passes when its volume (Table 314.16(A), or the marked volume) is equal to or larger.

2. Volume allowance per conductor (Table 314.16(B))

AWG	18	16	14	12	10	8	6
cu in.	1.50	1.75	2.00	2.25	2.50	3.00	5.00

3. What counts

Item	Counts as
Conductor ending or spliced in the box	1 each (pass-through unbroken = 1)
Pigtail starting and ending in the box	0
Unbroken loop, at least 2x free length	2
Internal cable clamps (all together)	1, largest conductor
Each type of support fitting	1, largest conductor
Each device yoke or strap	2, largest conductor on it
Equipment grounds (all together)	1, largest ground

4. Common box volumes (verify in Table 314.16(A))

Box	cu in.	Max 14 AWG	Max 12 AWG
3 x 2 x 2-1/2 device	12.5	6	5
3 x 2 x 3-1/2 device	18.0	9	8
4 x 1-1/2 round or octagonal	15.5	7	6
4 x 1-1/2 square	21.0	10	9
4-11/16 x 1-1/2 square	29.5	14	13

5. Worked example: 3 x 2 x 3-1/2 box, two 12/2 NM cables, one receptacle

4 conductors x 2.25 = 9.00; grounds 1 x 2.25 = 2.25; yoke 2 x 2.25 = 4.50. Total 15.75 cu in. of 18.0 (pass). With internal clamps, add 2.25 for 18.00 (pass, no spare room).

6. Blank worksheet

Item	Count	Allowance	Volume
Total required			
Box volume			

Educational summary, not the NEC text. Verify against the edition and local amendments your inspector enforces. Not related to conduit fill: use a conduit fill calculator for raceways. © Azad Circuit Hub.