

Engineering Information



Conduit Cutting

ELECTRI-FLEX VISE

The Electri-Flex cutting vise is recommended for accurate, straight cuts in the field. This lightweight cast iron vise can either be bench-mounted or carried in the tool box. The clamping mechanism securely holds the flexible conduit while the slots guide a hacksaw to ensure a clean, square cut. Suitable for conduit trade sizes 3/8" to 1-1/2". Works well on other tubing and materials too. Order #BLC-1, Weight 2.4 lbs.

CUTTING FLEXIBLE CONDUITS

Proper cutting methods for flexible conduits are important to ensure a sealed connection when assembled with intended fittings. Furthermore, in case of flexible conduits containing steel, a clean, square cut is necessary for establishing a good connection for continuity of the ground.

HAND CUTTING IN FIELD

When using a handheld hacksaw, care should be taken to make a square, clean cut. This can be easily achieved through the use of the cutting vise shown on this page. For best results, a blade having 24 to 32 teeth per inch with no-set is recommended. For larger sizes, apply reinforced tape around the circumference of the conduit and cut directly through the middle of the tape. This will reduce the possibility of flaring the ends while cutting.

REPETITIVE PRODUCTION CUTTING

It has been our experience that in order to achieve the best results; a band saw having a blade with 24 to 32 teeth per inch at a speed of 300 to 350 feet per minute should be used. A no-set blade will produce the cleanest cut. Conduit should be held and supported in a safe manner. Abrasive cut-off wheels and chop saws are not recommended.

Conduit Wire Fill Charts

Per National Electrical Code — Chapter 9, Table 4

Trade Size	Internal Diameter (In.)	Total Area 100% (sq. In.)	2 Wires 31% (sq. In.)	Over 2 Wires 40% (sq. In.)	1 Wire 53% (sq. In.)	Internal Diameter (In.)	Total Area 100% (sq. In.)	2 Wires 31% (sq. In.)	Over 2 Wires 40% (sq. In.)	1 Wire 53% (sq. In.)
	Flexible Metal Conduit — BR, ABR					Liquidtight Flexible Metal Conduit — LT, LOR, EF, LA, CSA, ALT, AT, ATLA, ATX, CEA, ZHLA, LAS, EMS, EMSP, ACEA				
3/8	0.384	0.116	0.036	0.046	0.061	0.494	0.192	0.060	0.077	0.102
1/2	0.635	0.317	0.098	0.127	0.168	0.632	0.314	0.097	0.126	0.166
3/4	0.824	0.533	0.165	0.213	0.282	0.830	0.541	0.168	0.216	0.287
1	1.020	0.817	0.253	0.327	0.433	1.054	0.872	0.270	0.349	0.462
1-1/4	1.275	1.277	0.396	0.511	0.677	1.395	1.528	0.474	0.611	0.810
1-1/2	1.538	1.857	0.576	0.743	0.984	1.588	1.979	0.613	0.792	1.049
2	2.040	3.269	1.013	1.308	1.733	2.033	3.245	1.006	1.298	1.720
2-1/2	2.500	4.909	1.522	1.964	2.602	2.493	4.879	1.512	1.952	2.586
3	3.000	7.069	2.191	2.828	3.747	3.085	7.475	2.317	2.990	3.962
3-1/2	3.500	9.624	2.983	3.848	5.099	3.520	9.731	3.017	3.892	5.157
4	4.000	12.566	3.895	5.026	6.660	4.020	12.692	3.935	5.077	6.727
Trade Size	Flexible Nonmetallic Conduit Type A — BR, ABR					Liquidtight Nonmetallic Conduit Type B — NM, NMHT, NM2				
	Internal Diameter (In.)	Total Area 100% (sq. In.)	2 Wires 31% (sq. In.)	Over 2 Wires 40% (sq. In.)	1 Wire 53% (sq. In.)	Internal Diameter (In.)	Total Area 100% (sq. In.)	2 Wires 31% (sq. In.)	Over 2 Wires 40% (sq. In.)	1 Wire 53% (sq. In.)
3/8	0.495	0.192	0.060	0.077	0.102	0.494	0.192	0.060	0.077	0.102
1/2	0.630	0.312	0.097	0.125	0.165	0.632	0.314	0.097	0.126	0.166
3/4	0.825	0.535	0.166	0.214	0.284	0.830	0.541	0.168	0.216	0.287
1	1.043	0.854	0.265	0.342	0.453	1.054	0.872	0.270	0.349	0.462
1-1/4	1.383	1.501	0.465	0.600	0.796	1.395	1.528	0.474	0.611	0.810
1-1/2	1.603	2.017	0.625	0.807	1.069	1.588	1.979	0.613	0.792	1.049
2	2.063	3.341	1.036	1.336	1.771	2.033	3.245	1.006	1.298	1.720

Trade Size	NPT Threaded Fittings — Fitting Thread (NPT)		NPT Threaded Fittings — Knock Out Diameter	
	Trade Size	Trade Size	Trade Size	Trade Size
3/8	3/8	1/2	3/8	7/8
1/2	1/2	1/2	1/2	7/8
3/4	3/4	3/4	3/4	1-3/32
1	1	1	1	1-23/64
1-1/4	1-1/4	1-1/4	1-1/4	1-23/32
1-1/2	1-1/2	1-1/2	1-1/2	2
2	2	2	2	2-1/2