

ENGINEERING BULLETIN #122

Hose Assembly Cut Length Calculation

One of the most important jobs before fabricating an assembly is to accurately calculate the correct length that the hose and the braid must be cut to, or the hose “cut length.” The hose cut length is the assembly overall length (OAL) minus the total length of all of the fittings to be welded or threaded onto the assembly.

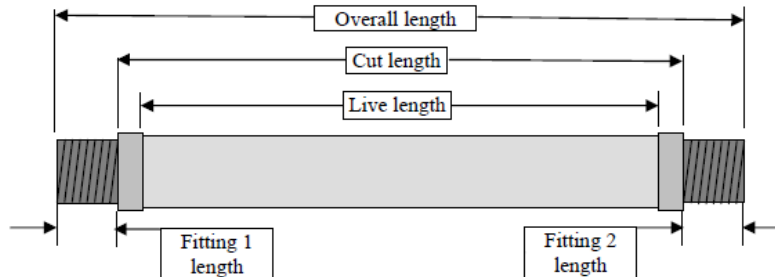
Here are several of the most common assembly types.

- **Type A:** An assembly with one straight hose section and a single solid (non-swivel) fitting welded to each end.
- **Type B:** An assembly with one straight hose section and a single solid (non-swivel) fitting welded to each end and an additional threaded fitting (such as a pipe union or a threaded flange) threaded to one, or both, of the welded fittings.
- **Type C:** An assembly with one straight hose section and an elbow fitting welded to one, or both, assembly ends.
- **Type D:** An assembly with one straight hose section and a swivel female fitting (such as a JIC) welded to one, or both, assembly ends.
- **Type E:** An assembly with two hose sections joined by an angled (45° or 90°) elbow. A Type E assembly is also called a “dog-leg” assembly.

In this Bulletin we'll take a look at how to calculate hose “cut length” for Type A, B, C and D assemblies.

TYPE A ASSEMBLY

An assembly with one straight hose section and a single solid (non-swivel) fitting welded to each end.



NOTES

- Overall length (OAL) = The total length of the assembly
- Cut length = The length that the hose and braid are cut to before assembly fabrication
- Live length = The length of the hose between the inner edges of the braid collars. This is the portion of the hose which can actually move to take up assembly bending and vibration in service.
- Fitting 1 length = The total length of the fitting on assembly end 1
- Fitting 2 length = The total length of the fitting on assembly end 2

CALCULATIONS

1. Determine Fitting 1 length
2. Determine Fitting 2 length
3. Calculate hose cut length

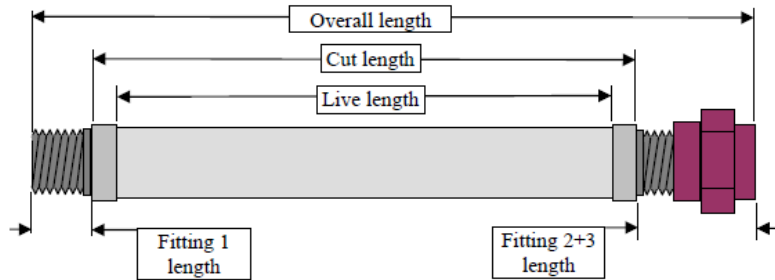
$$\text{Cut length} = \text{OAL} - (\text{Fitting 1 length} + \text{Fitting 2 length})$$

EXAMPLE

- OAL as ordered by customer = 24"
- Fitting 1 length = 3"
- Fitting 2 length = 2-1/2"
- Hose cut length = 24" - (3" + 2-1/2") = 18-1/2"

TYPE B ASSEMBLY

An assembly with one straight hose section and a single solid (non-swivel) fitting welded to each end and an additional threaded fitting (such as a pipe union or a threaded flange) threaded to one, or both, of the welded fittings.



NOTES

- Fitting 2+3 length = The total length of fitting 2 + fitting 3, tightly threaded together

CALCULATIONS

1. Determine the Fitting 1 length
2. Determine the Fitting 2 + 3 length by tightly threading the fittings together and measuring the total length
3. Calculate hose cut length

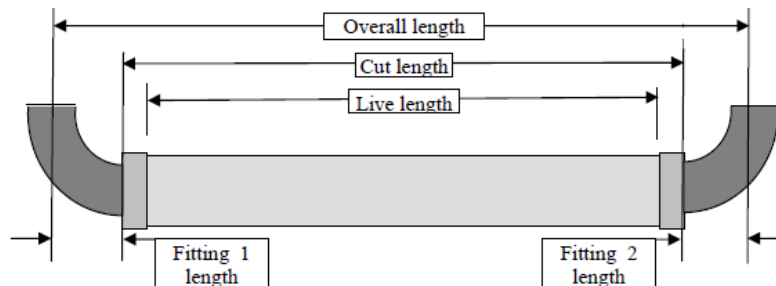
$$\text{Cut Length} = \text{OAL} - (\text{Fitting 1 length} + \text{Fitting 2+3 length})$$

EXAMPLE

- OAL as ordered by customer = 24"
- Fitting 1 length = 3"
- Fitting 2+3 length = 4-1/2"
- Hose cut length = $24 - (3" + 4\text{-}1/2") = 16\text{-}1/2"$

TYPE C ASSEMBLY

An assembly with one straight hose section and an elbow fitting on one or both ends.



NOTES

- Fitting 1 length = The total length of the fitting on assembly end 1, measured from elbow end to the centerline of the fitting other end
- Fitting 2 length = The total length of the fitting on assembly end 2, measured from elbow end to the centerline of the fitting other end

CALCULATIONS

1. Determine the Fitting 1 length
2. Determine the Fitting 2 length
3. Calculate hose cut length

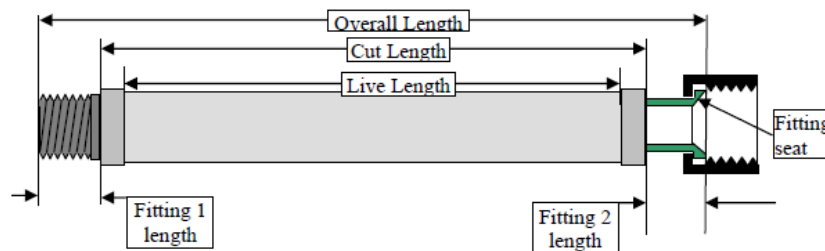
$$\text{Hose cut length} = \text{OAL} - (\text{Fitting 1 length} + \text{Fitting 2 length})$$

EXAMPLE

- OAL as ordered by customer = 24"
- Fitting 1 length = 3"
- Fitting 2 length = 3"
- Hose cut length = $24 - (3" + 3") = 18"$;

TYPE D ASSEMBLY

An assembly with one straight hose section and a swivel female fitting (such as a JIC) welded to one, or both, assembly ends.



NOTES

- Fitting 1 length = The total length of the fitting on assembly end 1
- Fitting 2 length = The total length of the fitting on assembly end 2

CALCULATIONS

1. Determine the Fitting 1 length
2. Determine the Fitting 2 length
3. Calculate hose cut length

$$\text{Hose cut length} = \text{OAL} - (\text{Fitting 1 length} + \text{Fitting 2 length})$$

EXAMPLE

- OAL as ordered by customer = 24"
- Fitting 1 length = 3"
- Fitting 2 length = 3"
- Hose cut length = $24 - (3" + 3") = 18"$;

If you have any questions or comments, please [contact us](#).