

THEATRICAL CURTAIN TRACK ORDERING GUIDE

This curtain track ordering guide is provided to aid in the understanding, selection and specification of an appropriate Tru-Roll track system for a given application. It should also provide insight into the conventions of curtain track design.

In order to make a track selection the following must be determined:

1. Size and weight of the curtain load.
2. Curtain operation parameters.
3. Track suspension method.
4. Overall track length requirement.

1. ESTIMATING CURTAIN SIZE AND WEIGHT

Determine the height and width of the finished curtain in feet. Also determine if the curtain will be fabricated for one-way operation, or divided into two panels for lap or bi-parting operation.

As an example, we will calculate for a bi-parting curtain to fill a space 20 feet high by 30 feet wide made of 25 oz/yd² velour fabric with an 8 oz/yd² fabric liner.* The bi-parting curtain will have a 2 foot overlap in the center and 100% fullness.**

To compute the curtain weight, add the Velour fabric weight to the liner weight to get a sum of 33 ounces per square yard. Divide by 9 to get 3.67 ounces per square foot.

The height of the curtain is 20 feet, add 1 foot for top hem and bottom chain pocket and then multiply $21 \times 3.67 = 77.07$ ounces. Doubling this for the 100% fullness equals 154.14 ounces. Divide by 16 and get 9.63 pounds. Finally, add 0.25 pounds for webbing and pocket chain. This results in 9.88 pounds per running foot. The total curtain width plus a 2 foot overlap is 32 feet $\times 9.88 = 316.16$ Lbs. total weight. (Note that each curtain panel includes half of the 2 foot overlap.)

Here is the consolidated calculation:

25	oz/yd ² velour fabric weight
<u>+ 8</u>	oz/yd ² liner weight
33	ounces per square yard, all fabric
<u>÷ 9</u>	convert to square feet
3.65	ounces per square foot
<u>× 21</u>	curtain height in feet + 1 foot for pocket & hem
77.07	ounces per running foot of fabric
<u>× 2</u>	100% fullness multiplier
154.14	ounces per running foot of pleated fabric
<u>÷ 16</u>	convert to pounds
9.63	pounds per running foot of pleated fabric
<u>+ .25</u>	weight of webbing and pocket chain per foot
9.88	pounds per running foot of finished curtain

The finished curtain dimension: Two 20 foot high by 16 foot wide panels. (Note: Other issues such as side masking and sightlines may affect actual curtain size requirements.)

As a general rule, Tru-Roll recommends that its medium weight tracks be limited to use for curtains up to 15 feet high and its heavy weight tracks be limited to use for curtains up to 30 feet high.

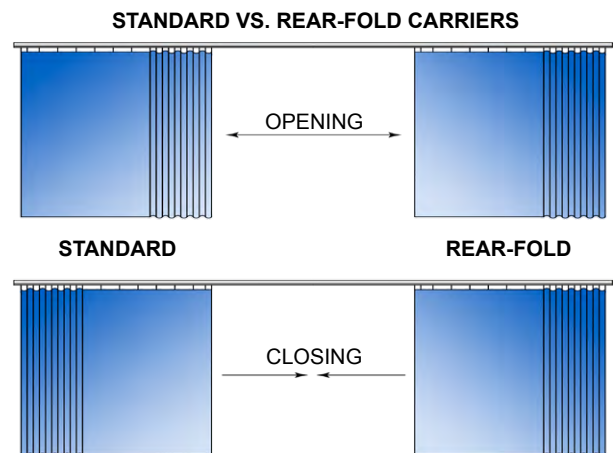
** Note that in the United States, theatrical fabric weights are still generally specified in ounces per square yard while the rest of the world uses grams per square meter (GSM or g/m²). To convert, divide GSM by 33.906 to get oz/yd². Beware that some fabric vendors will specify fabric weight by linear yard, which must be corrected for this calculation.*

*** Fullness describes the amount of pleating at the top of the curtain to improve appearance over that of a flat panel. 100% fullness indicates that every foot of curtain width uses a two foot width of fabric. Typical fullness specifications include 50% = 1 ½x, 100% = 2x, and 200% = 3x.*

2. CURTAIN OPERATION PARAMETERS

These are design options determined by operational and aesthetic requirements. Select the option from each category that best meets functional requirements for narrowing track selection.

- A. Curtain draw options include: one way travel of a single drapery panel, lap or bi-parting operation of two opposing panels, and cascade (vertical travel) of one or multiple panels. (Note: Lap utilizes a single continuous track with Lap Leaders providing a 6-inch center overlap of drapery. A Bi-parting configuration uses overlapping tracks to provide a center overlap of any length, typically 18 to 36 inches.)
- B. Curtains may be operated by motorized automation, cord operated by hand, or moved with a walk along dragline.
- C. Tracks are available for straight, curved, or serpentine configurations.
- D. 1000 series track can be supplied with standard or rear-fold carriers. See diagram below for a pictorial description.



Using curtain size, weight, and the chosen operation parameters, an appropriate track series number may be selected from the Tru-Roll Curtain Track Selection Guide on the previous page.

3. TRACK SUSPENSION METHOD

The installation location will dictate the track suspension method. Track must be supported from a rigid structure, using hanger spacing that does not exceed the minimum spacing requirement shown in the Curtain Track Selection Guide. For theatre stages with overhead rigging, Tru-Roll hangers for attachment to pipe truss or battens should be used.

Attachment to other overhead beams or structure should be engineered to meet the governing overhead rigging & lifting standards and is the responsibility of the owner. Custom hardware is available for attachment to I-beam and strut channel installations.

Additional consideration must be given to the support of the outside ends of the track. Realize that when the curtain is fully open, all the weight is transferred to the end of the track. This can be a substantial load with heavy theatrical drapes.

4. CALCULATE OVERALL TRACK LENGTH REQUIREMENT

Track length is determined by adding the curtains stacking dimension and track end hardware to the desired finished opening dimension, plus overlap.

Continuing with the example used above for a 20-foot high by 30-foot wide bi-parting curtain, we concluded with two curtain panels 20 foot high and 16 foot wide to allow for a 2-foot overlap.

Using the criteria from 1 & 2 above, Tru-Roll 1000 series straight track is chosen for this example.

The nominal opening of the curtain is 20 by 30 feet. For this example, we will factor in a sight-line consideration, which requires the leading edge of the curtain to open a foot past the nominal opening. The finished opening width will therefore be 32 feet.

The curtain-stacking dimension, when fully open, is equal to the sum of the leader length plus the number of carriers times the carrier length. In our example, each 16-foot curtain panel will have 17 snap connectors on one-foot centers. The leader connects to the first two snaps, requiring 15 carriers for the remaining snaps.

Referring to the Stacking Requirement column in the Curtain Track Selection Guide, the leader length for the 1000 Series track is 8-1/4 inches and the standard carrier stacking length is 2-1/8 inches. $2\text{-}1/8 \times 15 = 31\text{-}7/8$. Add 8-1/4 inches leader length for a total stacking length of 40-1/8 inches for each panel.

Each cord operated track is equipped with one head block and one tail block assembly which require track space on the outside ends of the track.* Refer to the table below for dimensional requirements. The standard 5-1/2" Dia. Head and Tail blocks for the 1000 Series track require 9 inches each for mounting.

To finalize the track length for each overlapping track segment, add one half of the desired finished opening to one half of the overlap, plus the stacking length for one panel, plus 9 inches for mounting the pulley assembly.

$$\begin{aligned} \text{One half of 32 feet} &= 16' \\ \text{One half of 2 feet} &= 1' \\ \underline{40\text{-}1/8" + 9"} &= 49\text{-}1/8" = 4'\text{-}1\text{-}1/8" \\ \text{Total length per segment} &: 21'\text{-}1\text{-}1/8" \end{aligned}$$

Two segments equal 42 feet 2-1/4". Since the track is sold in one-foot increments, the total track required is 43 feet configured in two equal sections with the specified overlap.

** Please note that the use of standard head & tail blocks applies to cord operated track, and are not required for walk-along operation. For motorized operation, consult with the factory.*

USING CWANA

CWANA is an industry acronym for "Complete With All Necessary Accessories." Tru-Roll offers CWANA packages for standard configurations of all track systems to simplify the specification and ordering process.

The track systems data pages that follow provide CWANA package information and part numbers for all hardware and accessories associated with each track series. Consult the factory for custom track configuration and automated curtain operation.

HEAD & TAIL BLOCK TRACK SPACE REQUIREMENTS										
Add head and tail block space dimension allowance to track length for cord operated curtains.										
	1000 series SKU No.	Track Space (inches)	1000 series Rear-Fold SKU No.	Track Space (inches)	1200 series SKU No.	Track Space (inches)	2000 series SKU No.	Track Space (inches)	2200 series SKU No.	Track Space (inches)
Std. Head Block	1002	8	1002RF	9	1202	3	2003	10	2203	5
Std. Tail Block	1003	8	1003RF	9	1203	3	2006	8	2206	4
8" Head Block	1002A	9	1002RFA	9						
8" Tail Block	1003A	11	1003RFA	11						