PURPOSE

To provide reference data for the dimension from the edge of the beam flange edge to the contact point of the wheel from which the reaction occurs when the trolley is under load (hereby referred to as the "a" dimension, see Figure 1). This dimension is required when calculating local flange bending stresses per CMAA 74 ("Specifications for Top Running & Under Running Single Girder Electric Traveling Cranes Utilizing Under Running Trolleys").

SCOPE

This document only includes current single girder trolleys where the "a" dimensions, at time of this EDOCs current revision, are not already published in their respective owner's manuals or in a separate specification EDOC. The trolley product families identified to meet these criteria are listed in Table 1.

MR / MR2
GT / PT
(G-)NTH
SHB

Table 1: Single Girder Trolleys Requiring "a" Dimension Definition

APPROACH

For each of the following tables, several different values are given. Each trolley is designed to run on either flat flanges or tapered flanges. For tapered flanges, the taper angle is assumed to be 9 degrees. Taking this and the shape of the wheels into consideration, there are two different "a" dimensions depending on the shape of the flange the trolley is running on. Both values are listed in the tables below.

For the purposes of this document, the **Nominal "a" Dimension** assumes that the trolley is exactly centered on the beam and that the trolley spacing is at the maximum allowable dimension as given in their respective owner's manuals. The "a" dimension is measured to the center of the contact area.

Considering that conditions are frequently not ideal, another set of dimensions are given with the assumption that the trolley may not be exactly centered on the beam. On trolleys using guide rollers to set the trolley spacing, this is taken into account by subtracting half of the maximum "Guide Roller-to-Guide Roller" spacing (as given in the owner's manual) from the Nominal "a" Dimension. A similar approach is taken for trolleys that use flanged wheels versus guide rollers. These adjusted "a" dimensions are referred to as **"a" Less Guide Roller Space** or **"a" Less Flange Space**, depending on the type of trolley guiding used on that product line. These dimensions should be considered the most conservative in the context of calculating local flange bending stresses per CMAA 74.

TABLES

	Nominal "a" Dimension		"a" Less Guide Roller Space	
	Tapered	Flat	Tapered	Flat
MR010	0.694	0.241	0.600	0.147
MR020	0.792	0.280	0.698	0.186
MR030	0.851	0.300	0.757	0.206
MR050	1.205	0.457	1.111	0.363
MR080+	1.105	0.253	0.964	0.112

Table 2: "a" Dimensions for MR / MR2 (inches)

	Nominal "a" Dimension		"a" Less Flange Space	
	Tapered	Flat	Tapered	Flat
PT005	0.387	0.091	0.309	0.013
GT/PT010	0.504	0.107	0.426	0.029
GT/PT020	0.634	0.130	0.556	0.052
GT/PT030	0.676	0.153	0.598	0.075
GT/PT050	0.986	0.342	0.908	0.264
GT/PT080+	0.987	0.216	0.862	0.091

Table 3: "a" Dimensions for GT / PT (inches)

	Nominal "a" Dimension		"a" Less Flange Space	
	Tapered	Flat	Tapered	Flat
(G-)NTH010	0.663	0.227	0.601	0.165
(G-)NTH020	0.819	0.234	0.757	0.172
(G-)NTH030	0.864	0.298	0.802	0.236
(G-)NTH050	1.123	0.386	1.061	0.324

Table 4: "a" Dimensions for (G-)NTH (inches)

	Nominal "a" Dimension		"a" Less Flange Space	
	Tapered	Flat	Tapered	Flat
SHB010	0.663	0.227	0.601	0.165
SHB020	0.819	0.234	0.757	0.172
SHB030	0.864	0.298	0.802	0.236
SHB050	1.123	0.386	1.061	0.324
SHB080/100	0.987	0.216	0.862	0.091

Table 5: "a" Dimensions for SHB (inches)

FIGURES

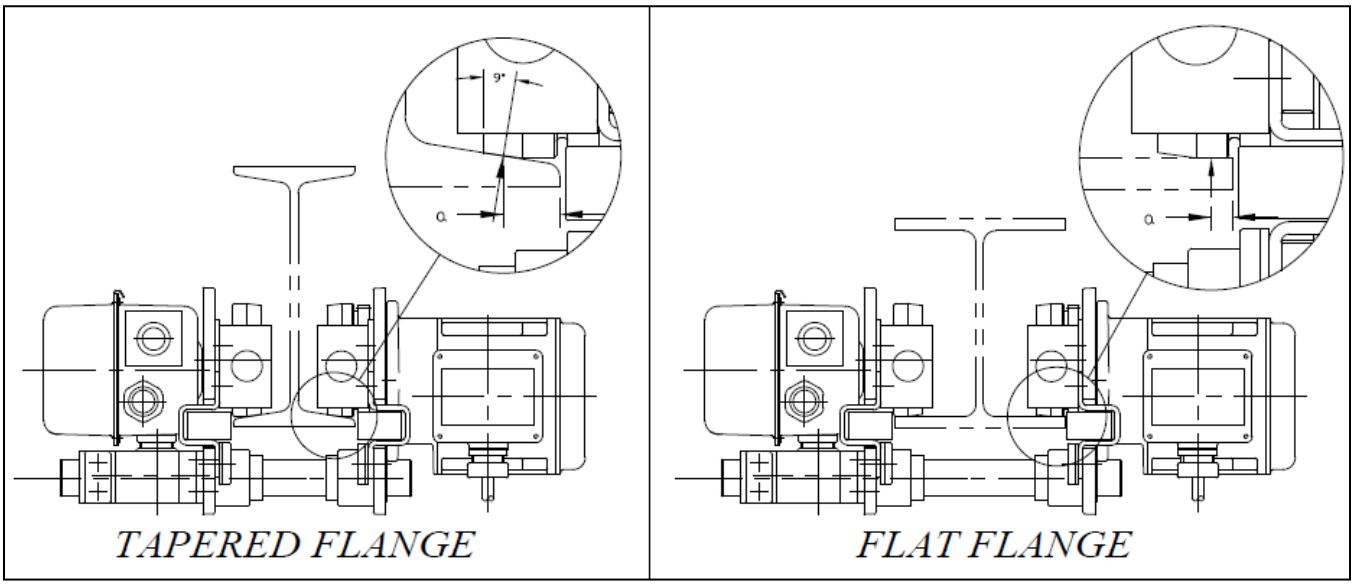

Figure 1: Examples of Nominal "a" Dimension location for tapered and flat flanges.