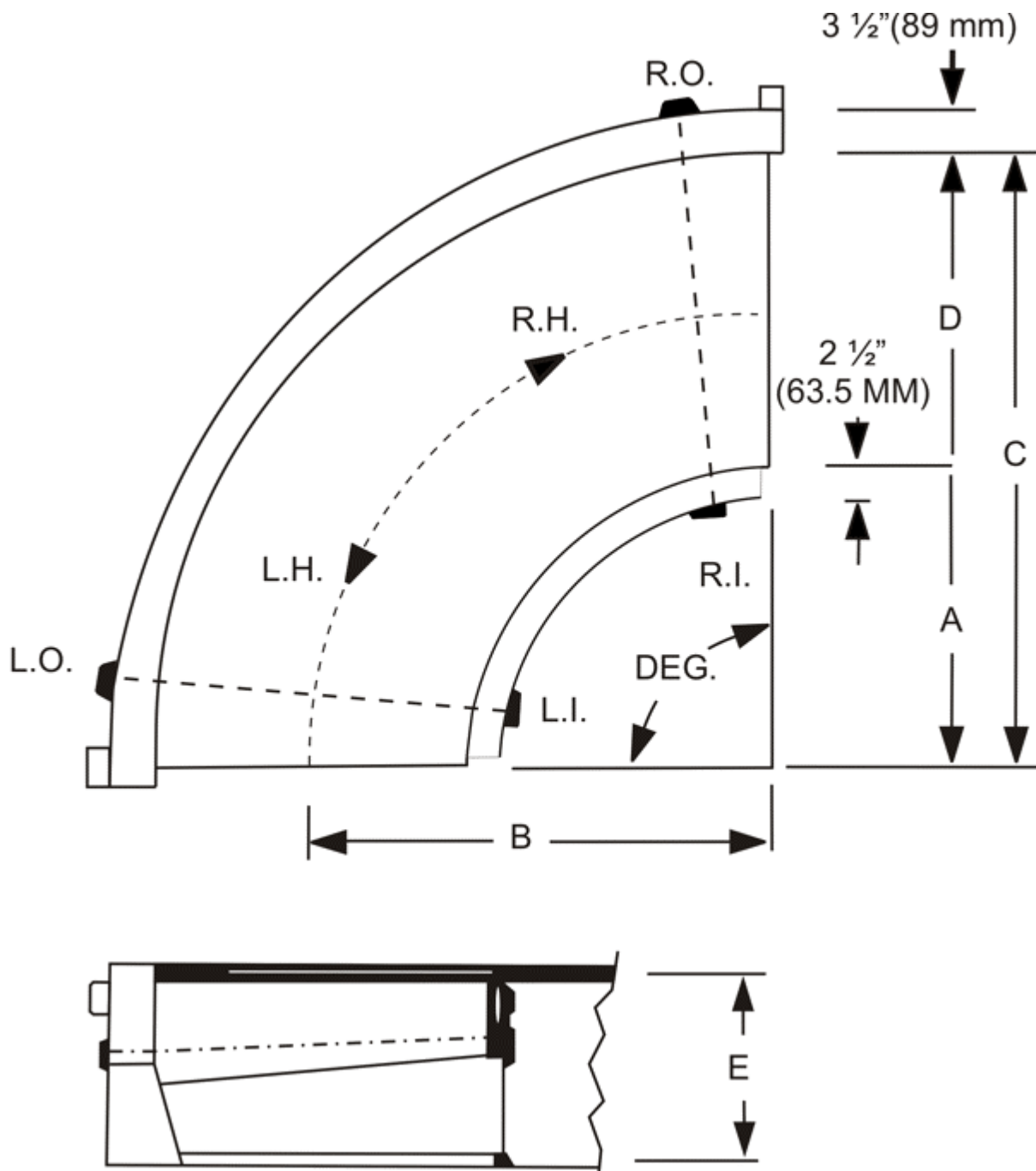


## Portec Knife-Edge® Technical Specifications

This is only a small example of the model sizes available from Portec. There are 3 standard family sizes of Portec Knife-Edge Curves based upon the outside conveying radius (C) and a range of belt widths (D). Any belt width within the available range and having one of the 3 standard outside conveying radii would be considered a standard model. While Portec frequently designs and builds special radius Knife-Edge curves, the standard models represent the best value and shortest production lead-time.



Model Numbers	Constant Dimensions in/mm	Inside Radius A	Conveying Centerline B	Belt Width D
<b>KA-3710</b>	C-47/1194 E-14/356  Std. Shaft Ø 1-3/16" 30.2 mm	37/940	42/1067	10/254
3512		35/889	41/1041	12/305
3314		33/838	40/1016	14/356
3116		31/787	39/991	16/406
2918		29/737	38/965	18/457
2720		27/686	37/940	20/508
2522		25/635	36/914	22/559
2324		23/584	35/889	24/610
<b>KB-4712</b>		C-59/1499 E-14/356  Std. Shaft Ø 1-3/16" 30.2 mm	47/1194	53/1346
4514	45/1143		52/1321	14/356
4316	43/1092		51/1295	16/406
4118	41/1041		50/1270	18/457
3920	39/991		49/1245	20/508
3722	37/940		48/1219	22/559
3524	35/889		47/1194	24/610
3326	33/838		46/1168	26/660
3128	31/787		45/1143	28/711
2930	29/737		44/1118	30/762
3732	27/686		43/1092	32/813
2534	25/635		42/1067	34/864
2336	23/584		41/1041	36/914
<b>KC-7710</b>	C-87/2210 E-14/356  Std. shaft Ø 1-3/16" 30.2 mm		77/1956	82/2083
7512		75/1905	81/2057	12/305
7314		73/1854	80/2032	14/356
7116		71/1803	79/2007	16/406
6918		69/1753	78/1981	18/457
6720		67/1702	77/1956	20/508
6522		65/1651	76/1930	22/559
6324		63/1600	75/1905	24/610
6126		61/1549	74/1880	26/660
5928		59/1499	73/1854	28/711
5730		57/1448	72/1829	30/762
5532		55/1397	71/1803	32/813
5334		53/1346	70/1778	34/864
5136		51/1295	69/1753	36/914
<b>KC-4938</b>	C-87/2210 E-16/406  Std. shaft Ø 1-7/16" 36.55 mm	49/1245	68/1727	38/965
4740		47/1194	67/1702	40/1016
4542		45/1143	66/1676	42/1067
4344		43/1092	65/1651	44/1118
4146		41/1041	64/1626	46/1168
3948		39/991	63/1600	48/1219

**Frame Assembly:**

The all-metal frame is fabricated using the following materials:

A. Frame sides	12 gauge steel
B. Slider bed	12 gauge steel
C. Chain Cover	Fabricated steel
D. Chain guide support	Welded steel

Welded 3/16" thick angle steel cross members provide a solid conveyor platform. The lower edge of the side frame has a 1-1/2" wide inward flange to attach floor supports. Bearings are mounted to bearing plates and attached to the frame.

**Frame Height:** Standard frame height is 14" / 356 mm and 16" / 406 mm.

**Belt Drive system:** Unlike friction drive straight conveyors, the Portec Knife-Edge® conveyor does not use the end roll to drive its conveyor belt. The belt is driven by its outside edge by the belt drive chain. Special attachment links connect the belt drive chain to a series of grommeted holes along the outside edge of the belt. The drive chain is positively driven by a shaft-mounted sprocket. This positive drive arrangement is unaffected by changes in loading, tension, temperature, humidity and foreign material getting between the bottom of the belt and the end rolls. When conditions change, there is no requirement for immediate attention to maintain the functional operation of the conveyor. Because the belt is merely a carrying surface and high tension is not required for operation of a chain driven conveyor, belt life, as well as integrity of belt joints, is greatly enhanced. The positive drive design is also very conducive to using mechanical lacing because concerns of damage to the end roll lagging (no lagging is required) are non-existent. Even in difficult access areas of a conveyor system, mechanical lacing allows for fast and efficient belt changes because, unlike conveyors with vulcanized endless splice belts, extensive disassembly of the conveyor is not required. In contrast, friction driven belt conveyors require exact tension control and adjustment to continue operation, and small changes in conditions can immediately affect functionality. On friction drive units, high belt tension to maintain drive-ability transmits high stress levels to the belt joints; decreasing belt life and increasing maintenance demands. Also on friction driven units, end roll components (shafts, bearings, pulleys) are subjected to much higher stress levels due to the required belt tension. Life expectancy of these components is necessarily shorter.

**Belt Drive Chain:** #50 sidebow steel chain with belt attachment links

Material:	heat-treated, carbon steel
Ultimate tensile strength:	5420 lbs.
Maximum working load:	640 lbs
<i>Nickel-plated chain and attachment hardware is available as an option. The chain guide material can easily be replaced as slide-out/slide-in strips with a fastener on each end.</i>	

**Positive Drive Belt System:** The conveyor belt is positively driven by a shaft mounted sprocket engaging a precision sidebow chain which is attached directly to the outside edge of the belt. This positive drive system is unaffected by changes in loading, tension, temperature, humidity, and foreign material on the belt . The Portec positive drive belt system ensures continuous, reliable operation even in harsh and difficult environments with minimal maintenance.

**End Roll Bearings:** All bearings are precision, sealed for life, and fitted in a cast iron housing. While additional lubrication is normally not required, a grease fitting can be installed for severe environments to lubricate the self-aligning feature of the bearing unit within the cast iron housing. Nickel-plated housings are available as an option.

**End Roll Sprockets:** Steel beveled tooth sprockets for #50 sidebow chain. Stainless steel or hardened tooth sprockets are available as options for special applications.

**End Rolls and Shafts:** The all-steel end rolls are formed using 12 gauge or 14 gauge steel. The hubs are machined from cold rolled steel and welded in each end. Stainless steel or solid plastic end rolls are available to meet sanitary requirements or for corrosive environments. The end roll shaft is turned, ground and polished 1045 or 1144 stress-proof steel. Each shaft is keyed to fit the end roll. A drive shaft extension is provided on one corner as specified. Extra shaft extensions can be provided as required. Stainless steel or metric shafting is available as an option. The end roll assemblies are easily replaced as drop-in assemblies. This is especially convenient in confined spaces.

**Return Rolls:** The returning belt is supported by several rubber covered, precision ball bearing wheels spaced across a 5/8" diameter steel shaft or on hanger brackets. This system is considerably quieter than hollow cylindrical steel rollers, which are often used on belt conveyors. Stainless steel shafts are available as an option.