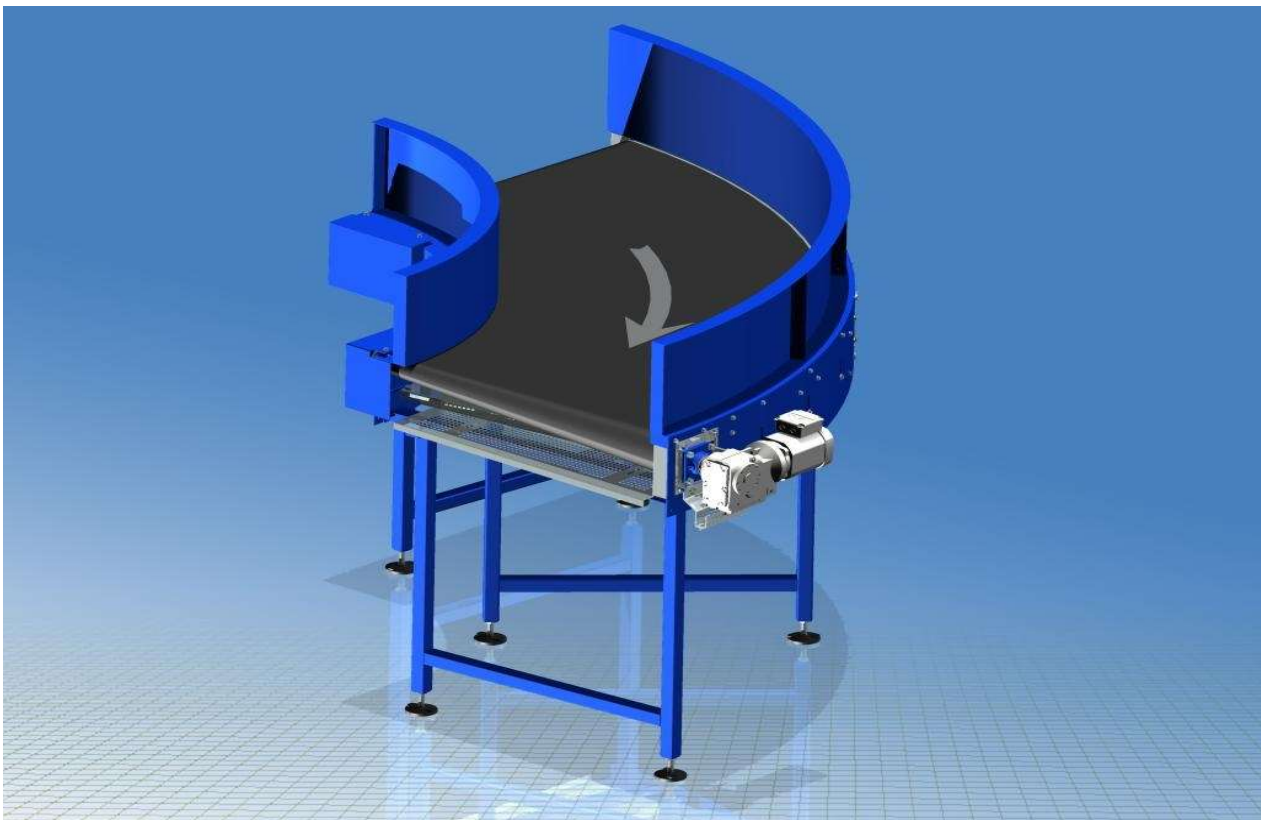




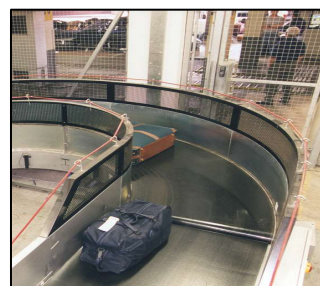
TS-TR150 AIRPORT BELT BENDS



Gramac Quartz Belt Bends: designed to smoothly change the travel direction of passenger baggage within high speed airport baggage handling systems.

Gramac Quartz is the division of Amber Industries Ltd which has specialised for over 30 years in the manufacture of Belt Bends for many different applications and combinations of load duty, arc and width formats. Its **TS-TR150** range of belt bends have been purposely designed for incorporation into the most demanding airport baggage handling environments.

Proven Track Record: Gramac Quartz Belt Bends have a proven track record of longevity and reliable operation in airport baggage handling systems around the globe. When operating under normal conditions and properly maintained a lifespan in excess of 15 years can be anticipated.



TS-TR150 BELT BEND FORMATS:

(Designed for integration into high speed airport baggage handling systems)

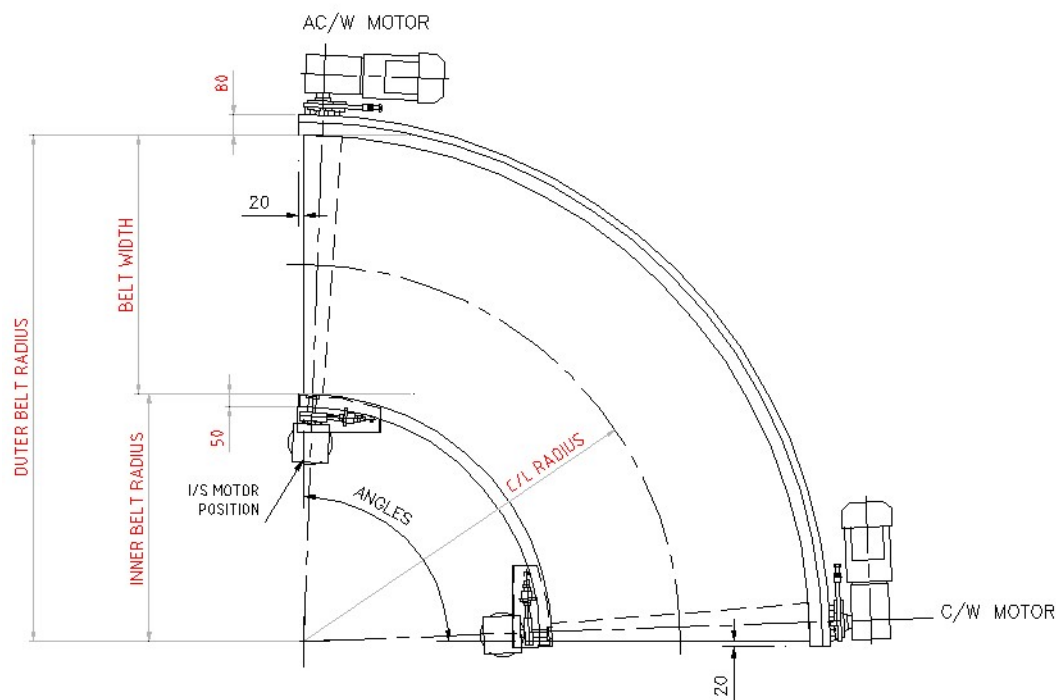
OUTER BELT RAD (mm)	BELT WIDTH (mm)	INNER BELT RAD (mm)	NOMINAL C/L RAD (mm)	(A) = SUBTENDED ANGLES (degrees)					MODEL DESIGNATION:
				30°	45°	60°	90°	180°	
1915	1030	885	1400	X	X	X	X	X	TS-TR150/1915/1030/(A)
1985	1030	955	1470	X	X	X	X	X	TS-TR150/1985/1030/(A)
2065	1030	1035	1550	X	X	X	X	X	TS-TR150/2065/1030/(A)
2185	1230	955	1570	X	X	X	X	X	TS-TR150/2185/1230/(A)
2265	1230	1035	1650	X	X	X	X	X	TS-TR150/2265/1230/(A)
2215	1030	1185	1700		X				TS-TR150/2215/1030/45

TS-TR150 SPIRAL BELT BEND FORMATS:

(Designed for integration into high speed airport baggage handling systems)

OUTER BELT RAD (mm)	BELT WIDTH (mm)	INNER BELT RAD (mm)	NOMINAL C/L RAD (mm)	(A) = SUBTENDED ANGLES (degrees)					MODEL DESIGNATION:
				30°	45°	60°	90°	180°	
1915	1030	885	1400			X	X	X	TS-TR150/1915/1030/(A)SP
1985	1030	955	1470		X	X	X	X	TS-TR150/1985/1030/(A)SP
2065	1030	1035	1550		X	X	X	X	TS-TR150/2065/1030/(A)SP
2185	1230	955	1570				X		TS-TR150/2185/1230/(A)SP
2265	1230	1035	1650				X		TS-TR150/2265/1230/(A)SP

N.B. The change in elevation and the direction of rise or fall of a spiral bend must also be specified.



TS-TR150 TECHNICAL SPECIFICATIONS:

Max Load Capacity = 100Kg/m measured along C/L
 Max Speed (measured on C/L) = 2.5 M/s
 Running Noise level: Dba @ 1m = 65 Dba or less.
 Ambient operating temperature range: -15°C to + 55°C
 Minimum pulley bearing L10 life = 50,000
 Tapered End Pulley Major Diameter = 150mm
 Overall frame depth = 320mm
 Top of Belt to underside frame = 270mm
 Max overhang of end of frame to pulley = 25mm
 Slider bed = 3mm sheet steel.
 Standard motor position: outside radius at discharge end
 Belt change time: under 20 minutes
 Under-guarding fitted as standard



TS-TR150 SPIRAL TECHNICAL SPECIFICATIONS:

Change in elevation = 150mm to max 500mm in 90°
 Max Load Capacity = 110Kg/m measured along C/L
 Grip-face belts fitted on spiral bends as standard
 Braked geared motor units fitted on spiral units as standard



Applicable Standards: BS EN619 : 2002,
The Machinery Directive 2009/127/EC

TS-TR150 RODUCT DESIGN FEATURES:

Friction Drive for Maximum Operating Life / Minimum Maintenance and Noise: All Gramac Quartz Belt Bends use the 'Friction Drive' method whereby friction between the belt and a drive pulley provides the motive force for the belt. This method has three clear advantages over the positive mechanical drive method. They are:

- i) The tensile stresses in the belt are more evenly distributed across the width of the belt thus extending the life of the belt and avoiding stress concentrations causing tears.
- ii) Noise levels are kept to a minimum because of the absence moving metal parts such as chains and transmission belts/chains. The maximum running noise level for any Gramac Quartz Belt Bend is 65 dbA at 1000mm, i.e. they are very quiet items of equipment.
- iii) Maintenance routines are minimal and no lubrication is required throughout the operating life of the bend unlike with positive mechanical drives where chains have to be regularly lubricated.

Minimal and Easy Maintenance: Gramac Quartz Belt Bends are designed to minimise and simplify maintenance operations without the use of any special tools. The heaviest item on a belt bend is normally the geared motor unit which can weigh up to 35Kg depending on size. Belt and pulley replacement is usually carried out from the inside radius of the bend but can be done from the top if there is insufficient space. All periodic inspection and maintenance routines are explained in detail in the O & M manual issued with every belt bend.

Newly introduced design features of the TS-TR150 Belt Bends are:

- Split top section which reduces the manual handling risk and the time consumed replacing the belt. Less physical exertion is required to open the frame so that one person can change a belt.
- Quick release under guards.
- Optional incorporation of 150mm wide viewing window to allow condition of belt guide bearing to be observed.



In summary **Gramac Quartz** friction drive Belt Bends offer highly reliable low cost of ownership over time.

Robust Construction: The Gramac Quartz Belt Bend's robust design consists of a rigid frame fabricated from steel section and plate rolled and formed to give the desired angle and radius. A stiffened 3mm thick steel slider bed is mounted within the frame to support the belt.



Tapered End Pulleys: Supported at each end of the curved frame by 'life greased' ball bearing units fixed to it are tapered conical pulleys manufactured in high density polypropylene on a steel shaft. These two pulleys can be adjusted in the horizontal plane by tensioning devices to provide the correct amount of tension in the belt. Each pulley is removable independently from the side of the belt bend.

Maximum Power Transmission: the drive pulley is lagged with a non-slip, highly wear resilient and heat resistant material which positively grips the underside of the belt. The taper of the pulley allows it to engage with the belt across its full width thus ensuring maximum power transmission from a suitably sized geared motor unit fitted to the shaft of the drive pulley.

Positive Belt Tracking: To keep the belt running on the correct line Gramac Quartz Belt Bends use a method of positive tracking. The belts are supplied with roller bearings fitted to the reinforced outer edge of the belt which then run on guide rails built into the outer perimeter of the steel frame.



Drive Type: shaft mounted motor gearboxes from multiple suppliers can be accommodated. Gramac Quartz standard supply is from the SEW Eurodrive range (IP54, IE2 compliant). Other types of drive unit can be readily fitted including the latest high efficiency units, e.g. SEW Movigear and Siemens Simogear.

Drive Position: the preferred position for the drive unit is horizontally mounted on the outer radius at the discharge end of the belt bend. On some larger radius bends it is possible to vertically mount the geared motor on the inner radius.

Travel Direction & Speed: travel direction of the belt can be clockwise or anti-clockwise at speeds of up to 150M/min as measured at the centre line. Variable speed drives can be supplied on request.



Belt Type: All airport belt bends are fitted with endless belts with only the minimum number of vulcanised spliced joints. The belt fabric used is two ply non mono polyester backed, black PVC top (smooth or grip-face surface as required), low friction, low noise, flame retardant to ISO 340.

Sidewalls: Removable sheet steel sidewalls can be fabricated to a max height of 450mm above the top of belt and a distance between of 1000mm, 1020mm or 1025mm. They can be supplied with brackets and slots for mounting photo sensors (PEC's) etc. for controlling material flow. Sidewalls can have a powder coated finish in a selected colour or a BZP finish.

Supports: can be 'H' type floor supports made from RHS, outriggers for low level positions, side mounted brackets for suspending from above using threaded rods or special supports can be designed to suit specific situations. Floor supports can be fitted with either anti-vibration footpads with +/- 50mm adjustment or with locking wheels/castors if required to be mobile.



Finish & Colour: belt bends can be powder coated in any standard RAL colour.

Fully Guarded: All Belt Bends are supplied with safety guards fitted to eliminate trap points and prevent inadvertent access to moving parts such as the pulley ends and roller guide bearings. These guards are designed to be lightweight for easy removal for maintenance. Removable sheet steel underside guarding is provided as standard.



ABOUT AMBER INDUSTRIES:



Amber Industries Ltd. is a primary UK designer, manufacturer & supplier of conveyor equipment and systems with over 40 years' experience in the mechanical handling and conveyor industry.

The company has its 2000 square metre manufacturing facility in Oldham, Greater Manchester, UK, where it's engineering, production & assembly operations are based and an extensive stock of components and spare parts is carried.

