

## ➤ Tuff Stuff (HPR) Technical Data Sheet

### Hi-Performance Ceramic Rollers

Calyco specializes in providing wear solutions for abrasion resistance, roller resistance and impact resistance, which will extend the life of your bulk handling equipment and keep your systems operating at maximum levels. Our industrial ceramic rollers are frequently specified as a high performance alternative support roller.

Hi-Performance rollers are manufactured using the highest quality alumina ceramic. All manufacturing is subject to stringent quality assurance testing using our unique equal static pressure forming technology and our crystal grain growth control technology.



#### PRODUCT ADVANTAGES

- **Anti-corrosion:** Chemical, Acid, Alkali will not cause corrosion
- **High Rigidity:** Extremely high wear resistance
- **Sealed Bearing:** Our unique labyrinth sealing ring stops lubrication leakage and reduces the risk of failure from premature bearing wear. This allows you to operate confidently under extreme conditions
- The Oxide film formed on the ceramic surface will not react or stain any substances. Our unique Slot Support Roller will help deliver power while self cleaning due to low resistance
- Long service life, from 2 -5 years longer than other support rollers it also reduces belt abrasion. The belt edge never comes loose, which prolongs belt service life
- The high economic effect for Hi-performance rollers will reduce general costs and maintenance hours
- Easy to install.

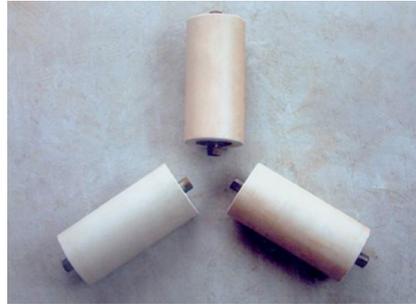
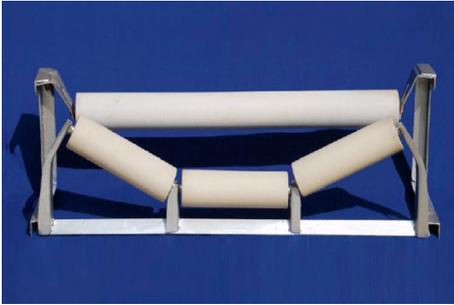
Calyco Hi-Performance Rollers offer superior wear resistance, excellent mechanical and anti corrosion properties. Calyco can supply the Hi-Performance rollers in a variety of standard sizes with the flexibility to manufacture to the customers requirements.

Contact your local Calyco representative for all your requirements including specialised shapes and sizes.

PROFILE		
Bulk Density	g/cm <sup>3</sup>	3.66
Bending Strength	MPa	400
Hardness	HRA	88
Abrasiveness	%	0.1

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#### Part One: Summary

Supporting rollers are one of the operational components for belt conveyer applications; it is required to bear strong mechanical wear and chemical corrosion resistance during the belt conveyor's normal working conditions. Therefore it is also one of the components which are easier to damage and fail. Ceramic rollers mechanical wear resistance and chemical erosion resistance are excellent during the operational periods especially under the environment of high temperature, humidity, acid-based erosion and dust.

Under the above conditions the trait of metal-material rollers, itself leads to accelerated-erosion, appearance of pitting & scratching from corrosion on the roller surfaces, will increase premature belt wear. This raises the maintenance work-load for the entire material transport system as well as increases the operating costs.

Our efforts on the research and development of wear-resisting ceramics for the bulk handling industry through the decade, take full advantage of the excellent chemical stability of ceramic materials.

Our "high-performance fine-grained alumina roller" (ceramic roller), then passed the International science and technology test standards; since the rollers were launched into the market, they are widely selected for severe environmental conditions and are a highly-efficient material for transport systems in steel Metallurgy, Thermal Power, All Mining, Cement & Chemical Industries.

#### Part Two: Characteristic of product

- 1. Erosion-resistance:** The strong chemical stability of alumina ceramic materials ensures that acids, bases and salts have no erosion function on it.
- 2. Abrasion-resistance:** Our Ceramic Rollers are manufactured to produce high material toughness for excellent compression resistance and impact strength while guaranteeing the highest surface hardness as well as abrasion-resistance.
- 3. Less resistance during the operation periods:** Our state of the art automatic hydraulic assembly process allows us to manufacture consistently to ISO9001 Standards. We only use only the highest quality bearings & lubrication available. Our unique dual-channel labyrinth bearing seals eliminate premature wear to the bearings in the bearing chamber.
- 4. Long-period usage:** the wear-resistance of alumina ceramic is 15 times higher than ordinary steel (high temperature and high corrosion environments can be over 30 ~ 60 times), owing to its advanced assembly techniques, its overall operation effectiveness extends over 10 times than that of a conventional steel roller.
- 5. Excellent safety performance:** roll surface of a ceramic roller on the belt, does not generate static electricity. This reduces dust absorption, reduces wear and tear on the contact surface of the belt, but also completely eliminates wear & tear that ordinary steel rollers may create. The ceramic rollers are non conductive, ceramic (inorganic non-metallic materials), significantly reduce the possibility of generating static electricity in the process of installation, handling and in operation. These characteristics are significant for industries which have stringent flame proof requirements such as mining.

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#### Part Three: Product performance standards and scope of application

Products meet the international standards (No.: GB/T990-1991), in which ceramic materials implement enterprise standard (Code: QB/2007-TG-C • HX). They are applicable to fixed belt conveyor systems and can be used for iron, steel metallurgy, mine terminals, electrical machinery, building materials, chemical industry and so on, the packing density of transportation materials is 500 ~ 2500kg/m3.

#### Part Four: Specification Of Supporting Roller

No.	Specification	Suitable bandwidth	Kinds	
1	ϕ89mm*	500~800mm	Upper supporting roller	
				190mm
				240mm
			305mm	Lower supporting roller
			375mm	
			465mm	
			600mm	
2	ϕ108mm*	500~1200mm	Upper supporting roller	
				750mm
				950mm
			315mm	Lower supporting roller
			375mm	
			465mm	
3	ϕ133mm*	500~1400mm	Upper supporting roller	
				530mm
				600mm
			1150mm	Lower supporting roller
			1400mm	
			1600mm	

Remarks: The products can be produced according to the requirement of users.

#### Mining Products

- Wear Protection • Equipment & Machinery
- Drilling and Blasting • Engineering Plastics
- Consumables • Safety