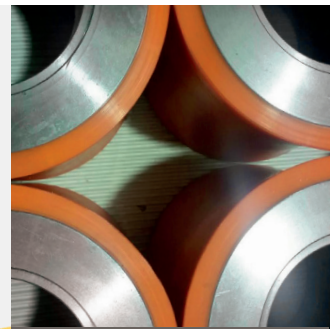
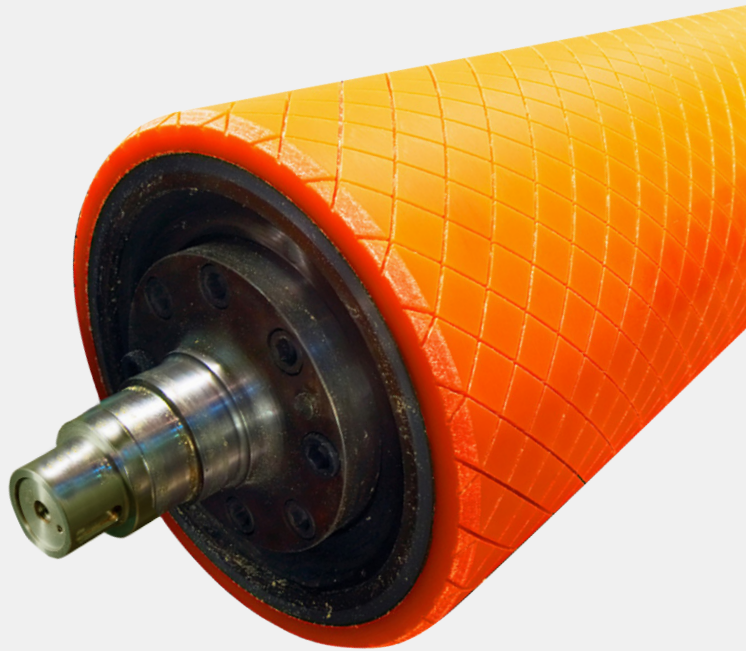


POLYURETHANE-COATED ROLLS

Extreme adhesion high-performance coating

Polyurethane-coated rolls find a place in multiple ferrous and non-ferrous metal rolling applications, wherever the rolled material must be properly protected from contact with the rolling equipment.

They must resist all mechanical stresses and minimize the abrasive wear rate in order to maintain proper roll shape. DanRoll polyurethanes are guaranteed against delamination phenomena which are synonymous of extremely high-quality bonding with the steel part of the roll.



DANROLL
 >Polyurethane coated rolls<

	ROTATIONAL CASTING (standard) Low cost	MOULD CASTING (Danieli) High quality
CASTING CONCEPT	Multiple layers bonded together	Monolithic coating
DELAMINATION RISK DURING OPERATION Caused by Hertzian pressure mechanical overload matching with a bonding line between layers	High	-
DELAMINATION RISK DURING RECONDITIONING Caused by machined diameter matching with a bonding line between layers	Very high	-
PRESENCE OF INTERNAL COATING DEFECTS Internal air bubbles reach the surface of PU layer while still not solid	Yes bubbles get trapped in the bonding layer generating delamination issues	No bubbles reach the roll surface and are removed by final machining
PROCESS COST	Low direct casting on metal body	Slightly Higher investment in moulds and flanges for each roll type



POLYURETHANE-COATED ROLLS

Extreme adhesion high-performance coating

MATERIALS,
MANUFACTURING
AND APPLICATIONS



Applications

- > Blocker rolls
- > Pinch rolls
- > Table rolls
- > Hold-down rolls
- > Steering rolls
- > Bridle rolls
- > Snubber rolls
- > Deflector rolls
- > Looper / Coil car rolls
- > Saddle rolls
- > Tailing rolls

Materials

Ongoing research and the development of new polyurethane polymers has led to solutions in areas in which only rubber was used. The improved physical and chemical performance of products made of polyurethane allow a considerable increase in operating time and consequently an enhanced productivity. Polyurethane combines the advantages of natural and synthetic rubber (elasticity, elongation at maximum load) with those of plastic materials (hardness, load capacity) allowing technical applications that otherwise would be impossible. Danieli Service offers a range of superior quality casting polyurethanes obtained from ether and ester polymers.

Manufacturing

DanRoll polyurethane coating is performed through mould casting instead of the classic and common rotational casting. Mould casting, despite higher manufacturing costs, guarantees exceptional bonding with the steel part of the roll and absence of internal defects like air bubbles and improper bonding of layers (typical of rotational casting). In fact, rotational casting is well known for introducing delamination failures due to mechanical stresses or after roll surface grinding.



Main features

- > Improved lifetime performances thanks to superior quality of polyurethanes and tailor-made formulation resulting from long experience in rolling mills development.
- > Elevated quality and reliability obtained by mould casting and manufacturing processes which eliminate completely all inclusions from the polyurethane coating.
- > No delamination phenomena making it possible to maximize roll exploitation time, minimize downtimes due to roll failure and consequently to reduce roll maintenance costs.
- > Exploitation and problem solving know-how based on a strong engineering team with years of experience on different plants, and customers focused on performance and reliability improvement.