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ITC NEWS

- 13 - 2003

Glaissbau
Vanoli

PROGRESS IN THE BUILDING OF RAILWAYS



Pict. 1: Ballast loading machine Schaeff type ITC 312 excavating within the close vicinity of station AU (ZH)

Project: Railway ballast bed and track renewal, SBB Zurich - Thalwil
Contractor: Fa. Carlo Vanoli AG, Thalwil (ZH)
Machine : Ballast loading machine Schaeff type ITC 312 VL1

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Vanoli

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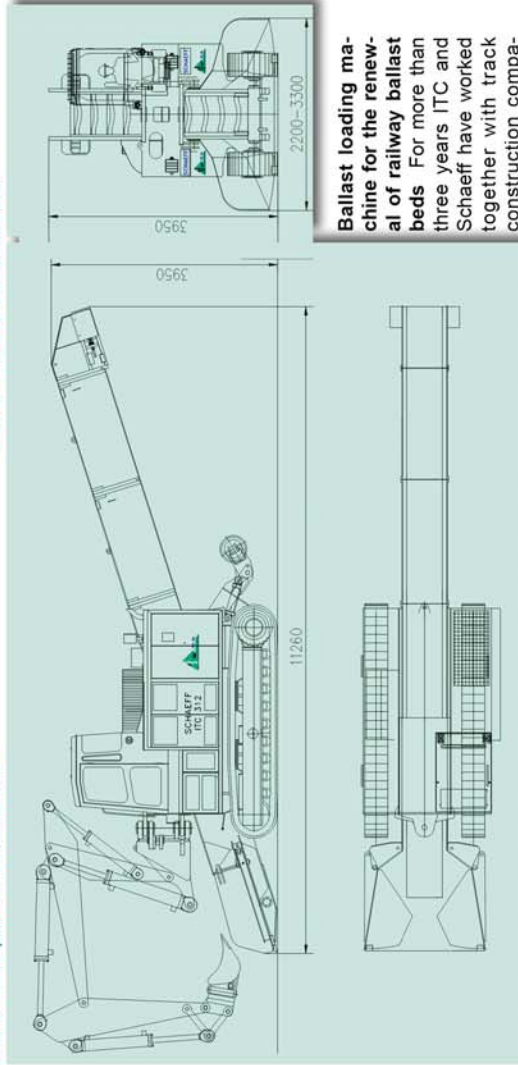
SCHAEFF
TEREX



Pict. 2: Three-part work mechanism



Pict. 3: ITC 312 with closed cab



Ballast Loading Machine Dimensions

MAIN DATA			
Base Machine: Schaeff type	ITC		312
Maximum chassis width:	mm		2350
Apron throat width	mm		770
Diesel Engine/Deutz	Typ	BF6L 914C	
Power output according to DIN 6270 BII	kW		137
Engine rotational speed	UPM		2300
Diesel tank capacity:	l		370
Driving speed:	km/h		0-3,6
Conveyor chain speed:	m/s		0.5-1.1
Digging output: up to	m ³ /h		300
Specific ground pressure:	kp/cm ²		1.0
Traction power:	kN		280
Weight	t		30

Ballast loading machine for the renewal of railway ballast beds

For more than three years ITC and Schaeff have worked together with track construction company, Vanoli, to develop a ballast loading machine for the renewal of railway ballast beds. The main aim of the programme was to develop a machine capable of excavating at a much higher productivity than conventional railway methods. The ballast loading machine uses a new concept to excavate the existing ballast bed, transferring the material to a conveyor system. With the existing track removed, the machine drives on the ballast surface with the use of twin tracks. This system has enabled ballast bed excavation to be improved from 50 m per shift to 100 m per shift. With two years successful operation of a conventional ITC 312 tunnel machine, ITC proposed their new system concept for railway use and were then

contracted to supply a modified ballast loading machine based on the well known 312 machine. Features: 140 kW diesel engine, closed operators cab, detachable rail gear, three part boom and adjustable apron. The machine has already been very successful on two work sites, with one of these being the main route from Zurich to Chur.

Project Description:

The new developed ITC machine, named the Vanoliner, was again in use between the middle of August and the end of September on the SBBAG contract. On the fringes of Wädenswil station, 2,370 m of track and ballast were renewed. During the night a 108 m renewal took place in eight hours with the excavation work accounting for 4 - 4.5 hours. With this system the existing track was removed with the aid of a rail crane and the cost of the Vanoliner was justified by its productivity. The Vanoliner, from Vanoli, was able to excavate across the complete width of the ballast bed and averaged a productivity of approximately 120 m³ per hour. The excavated ballast is transferred by conveyor to MFS wagons. This system is complemented by a railway locomotive which removes the wagons when full.

Vanoliner:

The track renewal system offered by the Vanoliner is suitable for all ballast tracks. The main advantages are on one hand the flexibility of the digging arm and on the other the machine productivity. The equipment used by Vanoli for track renewal consists of the ballast loading machine, MSF wagons and rail crane. Temporary track is constructed between the ballast loading machine and MSF wagons and is removed as the machine digs and moves in a reverse direction. The ballast loading machine moves on crawler type tracks and excavates with a standard digging arm and shovel. Peak output is reached at 160 m³/h.

The new materials are brought in and deposited by special Vanomag emptying containers and also tilting cars. In the same manner as the track removal, the new track panels are lifted in by rail crane.



Pict. 4: Very high traffic density



Pict. 5: ITC 312 with MFS wagons traveling through Wädenswil station



Pict. 6: Close working conditions between track and road.

Project: Railway ballast bed and track renewal, Süd-Ost-Bahn AG, Rothenthurm
Contractor: Fa. Carlo Vanoli AG, Thalwil (ZH)
Machine : Ballast loading machine Schaeff type ITC 312 VL1



Pict. 7: Working between slope and road on 1:20 gradient BALLAST

VanoLiner

**CONTINUOUS BALLAST LOADING MACHINE
SCHAEFF Type ITC 312 VL1**

Further info. on www.itcsa.com and www.vanoli-ag.ch



Pict. 8: Careful digging with accuracy

Pict. 9:

