Sasco Africa
Accurately Weighing Africa

RAIL
WEIGH-IN-MOTION

(RW-WM)

Trade Approved Rail-in-Motion Weighing

RWIM-24-01

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The **WEIGH-IN-MOTION RAIL WIMBRIDGE (RW-WM)** is an important product within Sasco's range of Rail Weighing solutions. Other trade approved products within Sasco's rail weighing range, include static rail weighbridges.

The RW-WM, when installed with DYNAMASS reporting software, provides an array of operational functionality including RFID readers wagon identification, the total integration of weighing data generated with user IT systems and powerful cloud and networking data capabilities, and the use of wagon tare weights for the generation of cargo weights.

The RW-WM comprises a trade accuracy retrofit technology which is built onto the existing rail tracks, with no rail cutting or sleeper replacement, thus making for rapid installation.

Product Overview

The high-speed weigh-in-motion trade accuracy is achieved on the RW-WM, through the use in the system of the patented Vertical Load Receptors combined with complex yet proven weighing algorithms, so as to provide a product with the following features:
• Trade Metrology accuracy under approval number SA-1350 and OIML compliance.
• Model variants providing for trade approved accuracy up to 60 km/h.
• Full automated unmanned RFID driven operations.
• Installation without the cutting of existing railway lines.
• Advanced Dynamass Reporting software.
• Direct ERP data interfacing.

Speeds and Model Variants

The number of Vertical-Load-Receptors determines the speed at which trade approved accuracy can be achieved.

Accordingly, there are 3 models:

	PLC Based T Series - 04	PC Based - 08	PC Based - 16
Speed of Operations	< -20 km/h	< -35km/h	< -60 km/h
Accuracy	+ - 0.5%	+ - 0.5%	+ - 0.5%
Number of Weighing Sensors	4	8	16
Approval Number	SA 1350 AA2	SA 1350 AA1	SA 1350 AA3
Automated Wagon Identification Readers	Single/Dual	Single/Dual	Single/Dual
Automated Wagon Identification Reader Standard	ATA/Aar/Gen-ll	ATA/Aar/Gen-ll	ATA/Aar/Gen-ll

Vertical Load Receptors

Due to their accuracy and the fact that they can be retrofitted to existing rail tracks, Vertical Load Receptors are a key distinguishing feature of the RW-WM.
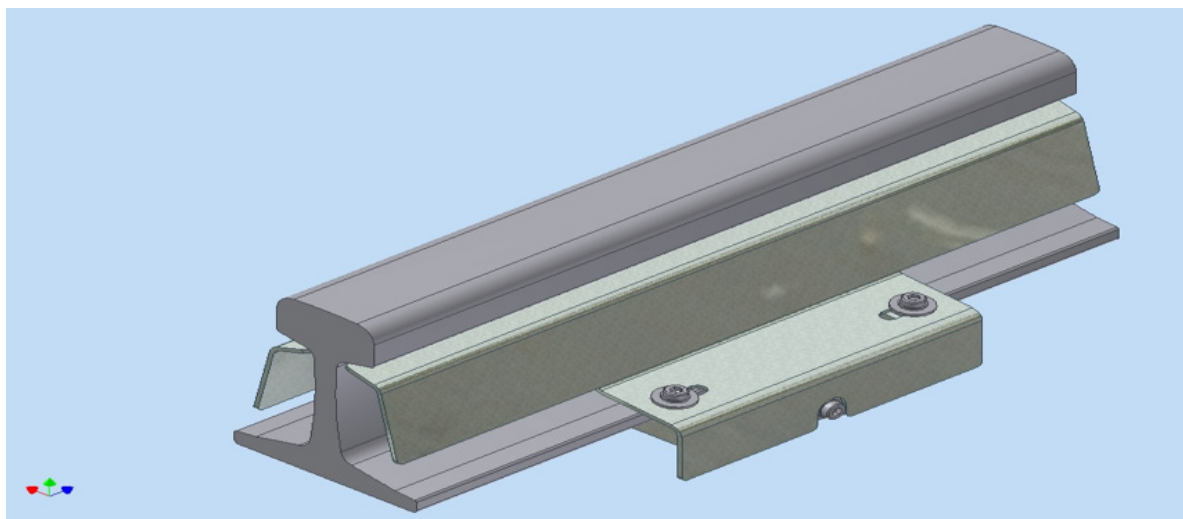
Vertical Load Receptors are bolted onto the existing track thus making installation simple and cost effective.

Automated Unmanned Operations

Automated unmanned operations are achieved through the connection of the RW-WM processors to one or more RFID automated vehicle identification readers. Depending on the tagging of the wagons, one or two readers may be required.

The RW-WIM model T04 installed with one automated vehicle identification readers.

Software and Data Interfacing

Central to the operations of the RW-WM is the Dynamass software which enables the system to:
• Operate on a fully automated and fully unmanned basis.
• Generate specific automated reports.
• Trigger alarms if pre-selected field values are exceeded.
• Store data when off line and then to transmit this data once connectivity has been re-established.
• Interface with a range of ERP systems.

Dynamass PC Reporting software

Other Software Functionality Features

Additional features offered by the RW-WM include:

• The ability to automatically estimate tare values for wagons in respect of which tare data is missing; and
• Generate reports on the relative left right loadings of individual wagons.

No.	Vehicle Type	Axles	Wagon No.	Speed (km/hr)	Masses (ton)						
					Total	Tare	Net	Bogie 1	Bogie 2	Left	Right
1	L	6	[]	9.1	127.60	127.60	0.00	62.58	65.02	63.30	64.30
2	L	6	044193 [44D]	9.7	128.38	128.38	0.00	63.22	65.16	64.48	63.90
3	W	4	23414510 [SHR28]	10.2	80.74	23.44	57.30	39.58	41.16	41.32	39.42
4	W	4	23420464 [SHR28]	10.6	76.12	23.40	52.72	40.26	35.86	39.66	36.46
5	W	4	23417188 [SHR28]	11.0	81.22	23.10	58.12	39.92	41.30	39.94	41.28
6	W	4	23400439 [SHR28]	11.3	77.76	22.99	54.77	38.26	39.50	39.06	38.70
7	W	4	23451394 [SHR29]	11.6	77.48	23.50	53.98	39.40	38.08	41.12	36.36
8	W	4	23402229 [SHR28]	12.0	78.78	22.94	55.84	39.50	39.28	41.76	37.02
9	W	4	23400641 [SHR28]	12.2	82.38	22.11	60.27	42.86	39.52	42.32	40.06
10	W	4	23415509 [SHR28]	12.6	77.78	23.49	54.29	39.46	38.32	38.74	39.04
11	W	4	23400536 [SHR28]	12.7	80.84	23.55	57.29	40.50	40.34	42.56	38.28
12	W	4	23400935 [SHR28]	13.0	79.14	23.84	55.30	38.46	40.68	40.22	38.92
13	W	4	23450398 [SHR29]	13.2	78.40	23.76	54.64	39.06	39.34	39.50	38.90
14	W	4	23413174 [SHR28]	13.5	80.28	23.43	56.85	40.08	40.20	39.88	40.40
15	W	4	23427434 [SHR28]	13.6	79.60	22.87	56.73	39.72	39.88	40.26	39.34
16	W	4	23416548 [SHR28]	13.7	78.82	23.46	55.36	39.60	39.22	39.68	39.14
17	W	4	23413948 [SHR28]	13.9	80.38	22.91	57.47	39.78	40.60	37.94	42.44
18	W	4	23415819 [SHR28]	14.0	76.44	23.11	53.33	37.02	39.42	38.46	37.98
19	W	4	23426411 [SHR28]	14.1	77.92	22.85	55.07	38.74	39.18	40.90	37.02
20	W	4	23406569 [SHR28]	14.2	78.50	23.02	55.48	39.50	39.00	39.22	39.28
21	W	4	23412186 [SHR28]	14.3	79.08	22.85	56.23	39.46	39.62	37.18	41.90
22	W	4	23411864 [SHR28]	14.4	76.58	23.55	53.03	39.64	36.94	39.74	36.84
23	W	4	[]	14.4	79.64	20.40	59.24	40.00	39.64	39.72	39.92
24	W	4	23402032 [SHR28]	14.5	83.72	22.99	60.73	41.34	42.38	41.60	42.12
25	W	4	23416173 [SHR28]	14.6	79.56	25.31	54.25	40.06	39.50	41.24	38.32

Detailed wagon loading report showing total weights, tare weights, net cargo weights and left right wagon loading.

Application Example:

RW-WM

Company A operates a port terminal into which iron ore is bought in high volumes by rail. Once received into the port area, this ore is discharged into a conveyor belt system which moves the ore directly into the waiting ships.

Company A requires an in-motion trade approved rail weighing system that can determine the net cargo weight per wagon and directly feed this data into Company A's ERP system real time. The system should be unmanned and automated.

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All the rail wagons have RFID tags on them which records the wagon number and tare weight. The wagon speeds are approximately 20- 30 km/h. The rail track is mounted on concrete sleepers, and is both firm and level.

The optimal solution is the RW-WM Model 08 operating with Dynamass software. The system set up will comprise:

• Eight Vertical Load Receptors fitted to the existing rail track.
• One RFID wagon reader mounted on a pole approximately 3m from the track
• A PC loaded with Dynamass software located in a secure building in reasonable proximity to the railway tracks, which has internet connectivity Company A's IT systems.

High Volume Iron Ore Transportation By Rail