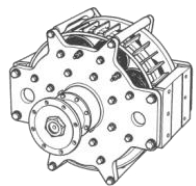


TELMA Company Presentation



TELMA 75+ ...



1946

Introduction of the first Telma company retarder



2001

Intégration of Telma in Valeo group



2018

New entity in India
Telma Induction Brakes Pvt Ltd opened



1958

The distribution network had been extended to European countries



2010

Repurchasing from the Valeo group by 4 managers and 3 investors



2021

Establishment of production plant in India

QUALITY APPROACH – TELMA SA



Source: <https://www.indiamart.com/proddetail/ohsas-18001-certificate-10243253373.html>

TELMA – WORKING PRINCIPLE

- ❑ Telma induction brakes, commonly known as electrical or electromagnetic retarders, offer an endurance braking system: they dissipate a large part of the braking energy, thus relieving conventional braking systems.
- ❑ Telma induction braking systems dissipate the braking energy by generating eddy currents. Telma induction braking systems are made of a fixed stator and a pair of rotors that are attached to the driveshaft to allow it to rotate.
- ❑ The stator plays the role of the inductor; it is made of a pair of electromagnets, which generate electromagnetic fields when electricity continuously flows through the stator coils, thereby producing eddy currents in the mass of the rotor.



Watch Video: <https://www.youtube.com/watch?v=5FMoUEmSsdE>

TELMA & ITS APPLICATIONS



**PASSENGER TRANSPORT:
INTERCITY/TOURIST/SCHOOLS
/AMBULANCES**



**GOODS TRANSPORT:
TIPPERS/TRAILERS/HAZARDOUS**



SPECIAL VEHICLES



INDUSTRIES



**RECREATIONAL
VEHICLE**



TEST BENCHES



HIGH SPEED TRAINS

TELMA – VEHICLE INTEGRATION

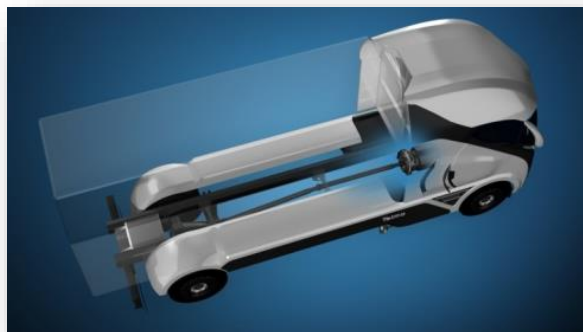
AXIAL RANGE – FITTED ON THE DRIVE SHAFT

Axial retarder			
Range	Retarder Model	Torque	Vehicle GVW
AF3	AF30-35	350 Nm	3.5 – 6 T
AF5	AF50-60	600 Nm	6 – 8 T
	AF50-90	900 Nm	8 – 12 T
AD6	AD61-55	1550 Nm	12 – 19 T
AD7	AD72-00	2000 Nm	17 – 32 T
AF8	AF83-00	3000 Nm	32 – 44 T



**Bharat Benz
OF1623**

Focal ® RANGE – DESIGNED TO BE FITTED ON GEAR BOX OR DRIVE AXLES



Focal retarder			
Range	Retarder Model	Torque	Vehicle GVW
FV6	FV61-40	1400 Nm	6 - 15 T
FN7	FN71-65	1650 Nm	13 – 17 T
	FN71-95	1950 Nm	15 – 26 T
FN8	FN83-00	3000 Nm	32 – 40 T



Eaton/ZF & is typically available with all major gearbox manufacturer



Meritor/Dana & typically available with all major axle manufacturer

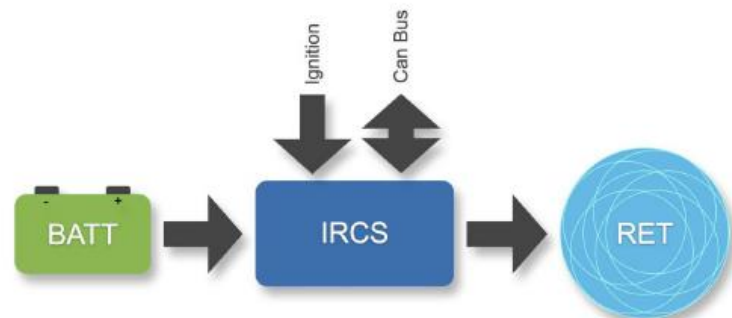
Electronics: iRCS

iRCS

The iRCS (integrated Retarder Control System) is an electronic box designed by Telma that integrates both the control and power functions into a single module.

The innovative electronic design of the iRCS's power function significantly reduces the retarder's energy consumption and preserves its electric circuits.

The modernity of design and flexibility of the control part of the iRCS, as well as its compatibility with CANBUS networks, allow for seamless integration of Telma retarders in all vehicles equipped with electronic braking systems (ABS, ESP, EBS, speed control, automatic transmission control...).



Electronics: iRCS

Main Functionality:

- a) A torque limitation (ABS, vehicle speed, battery voltage drop control...)
- b) A torque request (brake, lever coupling, cruise control, ACC integration....)
- c) Setting of the retarder
- d) control of retarder
- e) Accelerator and engine switch off (retarder protection against engine)
- f) Degraded modes
- g) Braking light activation
- h) Diagnosis (On Board / Off Board)
- i) Retarder Temperature Limitation

Type Approval:

- a) ECE Type approval : E24 10R-04 1132
- b) Directive 2005/64/EC updated from 2009/1/CE (recycling standard)
- c) Regulation (EC) N°1907/2006 – REACH
- d) Directive 2000/53/EC
- e) Hardware development in compliance with ISO26262 and safety criteria ASIL A

Why Telma?

SAFETY

Road accidents in India are estimated to be 20 billion \$ in 2012 *



- ❖ Instantaneous availability with full braking power.
- ❖ Remain effective even after the engine stops or when the gearbox is in neutral.
- ❖ No risk of service braking system overheating.
- ❖ **Reduce accidents and save lives and costs**
- ❖ **Increase in vehicle availability, enhanced earnings**
- ❖ Greater Driver Control @ Hilly Terrains
- ❖ * International road federation study

SAVINGS

Save up to 30,000+ annual



- ❖ **Brake lining saving up to 7 times a year.**
- ❖ Reduce vehicle downtime due to brake issues/maintenance, increases earnings
- ❖ No specific maintenance on the retarder and no cost impact.

Why Telma?

COMFORT

Silent and
smoothie



- ❖ Instant response to driver solicitations.
- ❖ Reduce driver fatigue.
- ❖ **Increase vehicle running time, and improved earnings.**

❖ ENVIRONMENT

❖ No fine particles
emission



- ❖ No friction & noise free braking.
- ❖ Absence of particle emissions.
- ❖ No fluid change or wearing parts.
- ❖ EMC compatibility
- ❖ Reduction of green house gas emissions.

❖ Telma means;

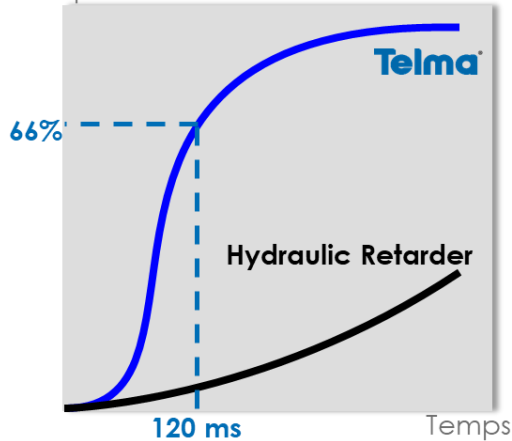
- ❑ Road safety, Cost savings, Reliability, Simplicity of in-vehicle interface
- ❑ Low maintenance, Environmentally friendly, Passenger/driver comfort.

ADVANTAGE OF TELMA RETARDER

- ❑ Instant response time less than 0.5 sec, other EMRs @ 1 sec & Hydraulic >3 Sec.
- ❑ Working Speed less than 3 Kmph, other EMRs @ 20kmph & Hydraulic > 30Kmph.
- ❑ Environment-friendly, with no fluid change or any worn-out parts or dust particles
- ❑ Least maintenance or No maintenance, Hydraulic every 80k Kms.
- ❑ Increase in Engine & Cooling system life as Telma does not need an engine cooling system
- ❑ Ease of Use, Flexibility, Adaptability, Range of products, simplicity in integration, robust technology.

ADVANTAGE OF TELMA RETARDER

Couple



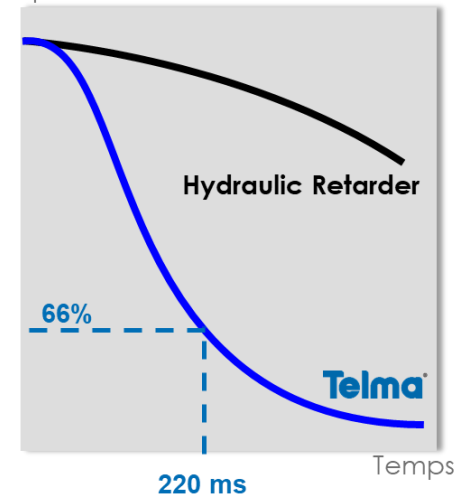
Response time during activation:

1. Telma technology has an instantaneous electrical response time.
2. Hydraulic technology has a response time 5 times longer, resulting in delayed efficiency during activation.

Response time during deactivation:

1. Telma technology has an instantaneous electrical response time.
2. Hydraulic technology has a response time 5 times longer resulting in a residual braking torque against the motor during deactivation

Couple



OUR INDIAN PARTNERS



Mercedes-Benz



Ashok Leyland

ArvinMeritor



MERITOR.

an *ArvinMeritor* brand



Thank You

