

Rentar Fuel Catalyst

Reduces Fuel Consumption and Reduces Harmful Emissions
More Energy on Less Fuel



Mining and Generator Applications

Using the Rare Earth Rentar Fuel Catalyst

25-Year-Old Established Company * Sole Source Technology with 33 Issued Patents

Verified Effective by EPA and CARB Recognized Laboratories

Marreg Corporation

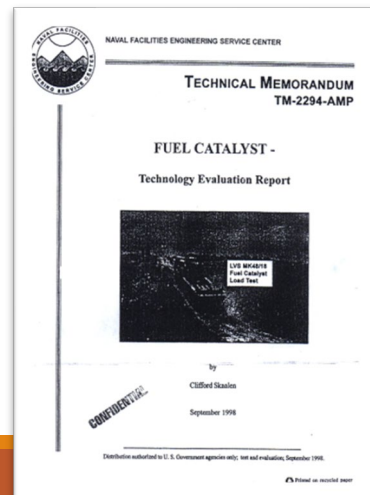
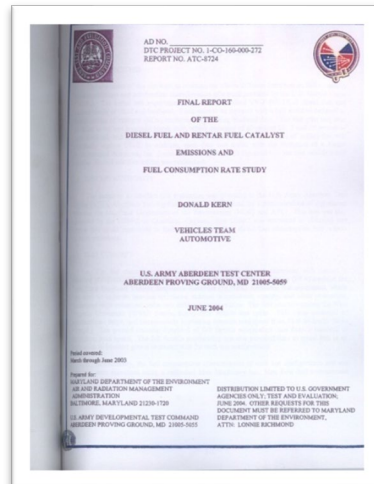
Rentar Fuel Catalyst is Independently Verified to:

- Reduce Fuel Consumption And Extend Range 2.0% To 8.0%
- Reduce Oil Fired Furnace Fuel Consumption 7.0% To 30.0%
- Reduce Greenhouse Gases example - NOx, Up To 19.2%
- Reduce Particulate Matter (PM) Up To 58.2%
- Reduce Black Smoke (Opacity) Up To 44.8%
- Extend Engine Life Between Engine Rebuilds 20% to 50%
- Reduce Organic And Elemental Carbon Up To 35.0%
- Reduce Volatile Organics up to 63.0%



Results vary based on the applications, type of engine and type of fuel utilized

Laboratories and Companies who Tested the Rentar Fuel Catalyst Successfully



- Southwest Research Institute
- EPA & CARB Recognized Laboratories
- US Army Aberdeen Proving Grounds
- Sotreq Caterpillar
- Olson Ecological Laboratories
- Virginia Tech University
- SGS, SA
- Yamana Gold
- CEMEX
- Vulcan Materials



Benefits of the Rare Earth Rentar Fuel Catalyst to the Mining Industry

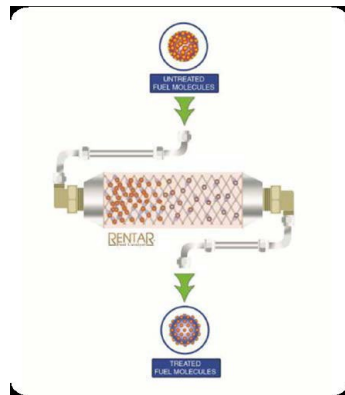
- Reduces Fuel Consumption
- Increases Payload Per Gallon / Liter
- Reduces Greenhouse Gas Emission
- Extends Engine Life
- Extends Oil Life
- Reduces Engine Maintenance
- A Forever Life
- Easy to Install
- Pays for Itself in Fuel Savings in 3 to 12 Months



How does it work?

The Company's core product is the *Rare Earth Rentar® Fuel Catalyst* ("RFC"), which aggressively conditions fuel through a series of complementary processes, resulting in a more complete and cleaner burn at combustion. Rentar technology, with its Platinum and Palladium Rare Earth Elements, works with any fossil fuel combustion process.


RENTAR®
Fuel Catalyst



Fundamentally rooted in “cracking fossil fuels”, a method of altering organic compounds with large molecules, making them more useful compounds with smaller molecules. The RFC enables the clustered molecules in fuel to temporarily repel each other, allowing more surface area of the fuel molecules to be exposed to oxygen at the point of combustion.

The proprietary combination of rare earth elements contained in Rentar's catalyst causes the saturated straight-chain aliphatic (paraffin) molecules to convert into unsaturated ring compound aromatics, which in turn releases a small amount of hydrogen. The hydrogen interacts with the dispersed fuel molecules to achieve a more complete combustion.

Testimonial Letters



Date: 02/05/2012


To whom so ever it may concern

This is to certify that HBL -Rentar Fuel Catalyst having following specifications have been installed at Tata Motors Ltd., Lucknow plant

Sr No.	Model No.	Qty	Mounted on Equipment
1	HBEN 2012	02 Nos.	1010 KVA Cummins DG
2	HBEN 2012	02 Nos.	1010 KVA Cummins DG

Since the installation, Fuel catalysts are performing to our satisfaction at above mentioned DG sets. We are pleased to confirm that we have achieved saving of 15.57% on specific fuel consumption.

For M/s. Tata Motors Ltd.


S. M. Singh
DGM - Plant Services

TATA MOTORS LIMITED
Chhat Industrial Area Lucknow 226 019
Tel: 91 522 2818012-2818020 2818020 Fax: 91 522 2818046
Registered Office: Bombay House 24 Horni Modi Street Mumbai 400 001



Mahindra & Mahindra Ltd
Agri Development Centre
Tractor Division
Kichha Road, Lalpur (Rudrapur)
Distt. Udham Singh Nagar - 263143
Tel : 91-05944- 280723 / 25
Fax: 91-05944-280724

Ref no: MBM/RDP/HBL/1204/24

Date: 24th April '12

TO WHOM SO EVER IT MAY CONCERN

This is to certify that HBL RENTAR fuel catalyst has been installed on our generators and boiler applications.

The performance of HBL RENTAR Fuel Catalyst has been good and about 6% HSD saving achieved.

We appreciate the green energy efforts of M/S HBL Power System LTD. towards reducing the fuel consumption and carbon emission.




Registered Office: Gateway Building Apollo Bunder, Mumbai-400001.
Phone:2202 1031 Fax : (022) 2202 8780 / 8990

YAMANAGOLD | **15 ANOS**

March 21st 2019

We at Mineração Maracá Indústria e Comércio, a YAMANAGOLD job site, have successfully piloted the Rentar fuel catalyst model HBEN 2012 on our CAT 785C haul trucks with results that surpassed our objectives for fuel efficiency with a payback of less than a year. As a result, we have purchased the Rentar fuel catalyst for installation on our fleet.

We are pleased with the support from SOTREQ, our Rentar dealer, and from the direct relationship with the manufacturer itself. We are also pleased with the trouble-free performance of the catalysts, to date.

We are looking forward to our continued use of the Rentar fuel catalysts.


Fabio Gonçalves
Maintenance Coordinator
Tel: +55 62 3383-4049

YAMANAGOLD | **15 ANOS**

Mineração Maracá Indústria e Comércio
Rodovia GO 347 s/n - Fazenda Genipapo
Alto Horizonte GO - Brasil
76560-000
<http://www.yamano.com>

Improve Payload Per Gallon /Liter

RENTAR
Fuel Catalyst

Reduce Fuel Consumption and Exhaust Pollution

Extend Engine and Oil Life



Extend Engine Life 20% Between Rebuilds

Sotreq



- SOTREQ CATERPILLAR, the fourth largest Caterpillar Dealer in the world and is a Rentar Fuel Catalyst distributor in the eighth largest market in world..

SITECH

Sotreq S.A.

Via Gastão Cerneiros, 850 - Perobas
3.2371-630 Contagem - MG
Tel.: (31) 3559-6000
Fax : (31) 3559-6616

February 5, 2021

I would like to take this opportunity to introduce Rentar Environmental Solutions, Inc., the manufacturer of the Rentar® Fuel Catalyst, a product we provide to our customers in Brazil.

The Rentar catalyst works as a fuel optimizer for heavy-duty engines. It works differently from additives because it does not add anything to the fuel, it pre-conditions it to burn more completely at combustion.

We have been the sole source of the Rentar in Brazil since 2018 and some of our largest customers have bought the product for their diesel fleets after evaluating it with success, and others are currently evaluating it. The latest example is the fleet of CAT D11 dozers at a big mining site at North of Brazil were outfitted with the Rentar catalyst after a pilot study that showed a 4.3% reduction in their fuel consumption. Other customers include some of the biggest Brazilian iron ore minings.

We also know from past laboratory and field tests that the catalyst helps to lower greenhouse gas emissions and reduces the carbon buildup in the engine. This product is leveraging our business when the subject is emissions, and it is being of great advantage to us to have Rentar in our portfolio.

It is with confidence that I introduce the Rentar company. I am available for any questions, so please feel free to contact me.



Marx H. M. Gutierrez
General Manager
SITECH Brasil
marx.gutierrez@sitechbr.com.br
+55 31 998632686

March 21st 2019



Yamana Gold Inc. is a Canadian-based gold producer which is a listed NYSE company with more than \$1.8 billion in revenues. They have significant gold production, gold development stage properties, exploration properties, and land positions in Canada, Brazil, Chile and Argentina.

Yamana Gold has installed Rentar Fuel Catalysts at their Brazilian mine and provided this letter of endorsement.

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Fabio Gonçalves
Coordenador de Manutenção
Engenheiro Mecânico
CREA 50837-37/GO

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Maintenance Coordinator

Tel: +55 62 3383-4049

YAMANAGOLD 15
ANOS

Mineração Maracá Indústria e Comércio

Rodovia GO 347 s/n – Fazenda Genipapo

Alto Horizonte GO – Brasil

76560-000

<http://www.yamana.com>



-
- VALE SA, a \$34 billion (revenue) company, the largest iron and nickel MINING OPERATOR in the world, is saving \$20,000 to \$35,000 per piece of heavy-duty equipment annually through fuel savings at a one-time cost of either \$7,000 to \$14,000. They have more than 2,000 pieces of equipment and they have begun equipping their fleet with the Rentar Fuel Catalyst in less than four months.

Automotive Research Association of India is co-operative industrial research association by the automotive industry with the Ministry of Industries, Government Of India



Testing Conducted on 6SL8800TA 200 KW Kirloskar 250 Genset Engine

Tested with ISO: 8178 D2 - 5 Mode Test Protocol

3.04% Fuel Improvement

58.2% Reduction of Particulate Matter

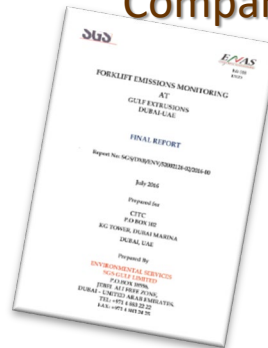
7.9% NO_x Reduction

35.4% CO Reduction

15.4% Hydrocarbon Reduction



World's Largest Inspection and Technology Verification Company



**SGS Verifies a 17.05% Fuel Reduction*,
a 27.5% Reduction of NO_x
and 32.5% Reduction of CO**



- Over 97,000 employees
- Over 2,600 offices and laboratories worldwide
- Conducted an emissions study on the Rentar fuel catalyst in 2016
- World's largest inspection and technology verification company

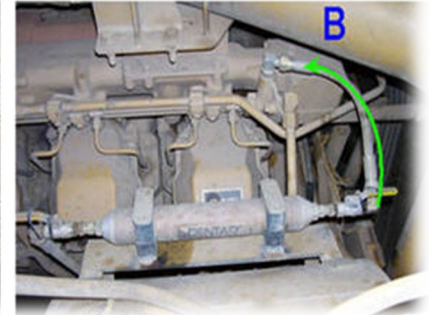
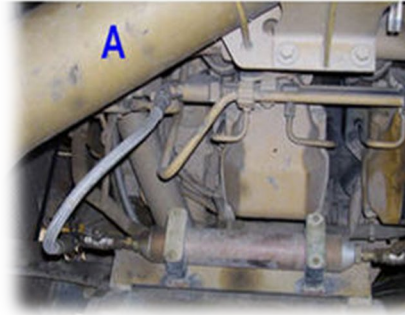
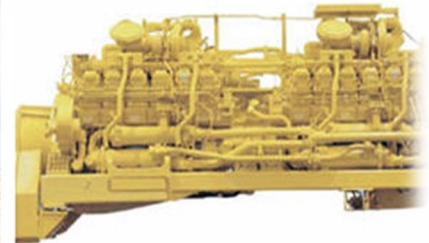
** Computed by Carbon Balance*



Heavy Duty Equipment

WHEEL LOADER 980H WITH CAT C15 | USA
5.6% IMPROVEMENT IN FUEL EFFICIENCY

CAT 797B WITH CAT 3524B ENGINE | CHILE
6.3% IMPROVEMENT IN FUEL EFFICIENCY



CAT 785C

Test Details

Trucks CB07 & CB12

Installation: 02/11/2018

End of Test: 03/12/2018

Trucks CB02 & CB10

Hours in Baseline: 694 (average)

Consumption in Baseline: 116.23 l/h

Hours in Post-cleanout: 135

Consumption: 124.59 l/h

WITHOUT RENTAR

Consumption on CB02 & CB10

$(124.59 - 116.23) / 116.23 = +7.19\%$

WITH RENTAR

Hours in Baseline: 556 (average)

Consumption in Baseline: 116.15 l/h

Hours in Post-cleanout: 134

Consumption: 119.91 l/h

CONSUMPTION DIFFERENCE

CB07 & CB12 (w/ Rentar):

$(119.91 - 116.15) / 116.15 = +3.24\%$

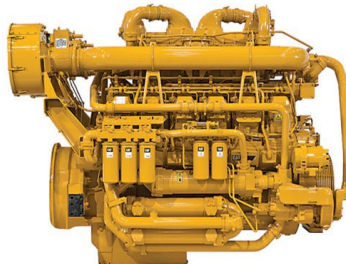
Hours per Day: 16.3

Days of Annual Operation: 365

Price per Liter of Diesel: US\$0.80

Rentar Fuel Catalyst: US\$ 10,269*

*2 catalysts per 785C



CAT 3512B

Final Result

$3.24\% - 7.19\% =$

-3.95%

Fuel Savings

ROI: 6 months

Annual Savings:
US\$28,552
Per Truck



Installation

Caterpillar 777D

Schedule of Annual Fuel Savings at Various Fuel Cost Using the Rentar Fuel Catalyst



*Assuming the Caterpillar 777D
Consumes 20 GPH / 20 Hours per Day / 6 days per Week / 50 Weeks per Year*

Per Gallon Price	\$4.00	\$6.00	\$8.00	\$10.00	\$12.00
2% Savings =	\$ 9,600	\$14,400	\$19,200	\$24,000	\$28,800
4% Savings =	\$19,200	\$28,800	\$38,400	\$48,000	\$57,600
6% Savings =	\$28,800	\$43,200	\$57,600	\$72,000	\$86,400
8% Savings =	\$38,400	\$57,600	\$76,800	\$96,000	\$115,200

Return-on Investment (ROI)

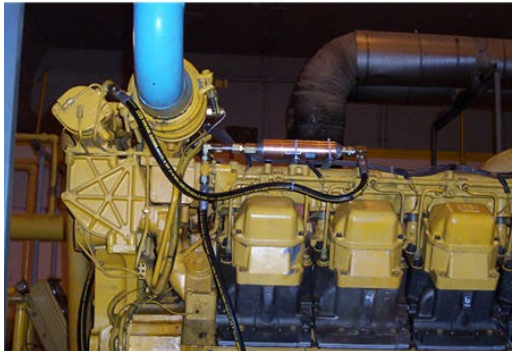
Actual					
CAT 793D (CAT3516B)	Liters	US\$0.59/L (\$ cost)	4% fuel reduction (\$ savings)	5.29% fuel reduction (\$ savings)	7% fuel reduction (\$ savings)
Hourly	157.33 L	\$92.82	\$3.71	\$4.91	\$6.50
Day – 12 hours	1,887.96	1,114	44.56	59.00	78.00
Month – 30 days	57,426	33,881	1,355	1,792	2,372
Year	689,106	406,573	16,263	21,508	28,460
Five Years	3,445,531	2,032,863	81,315	107,538	142,300
10 Years	6,891,062	4,065,726	162,629	215,077	284,601
Approximate time to payback for a haul truck at				Mine is 5.6 months*	

* Using a total product cost of US\$10,000 for two Rentar fuel catalysts on a CAT 793D haul truck at 5.29 percent fuel reduction

The CAT 793D haul truck requires two HBEN2012 units at an MSRP of US\$5,000 per unit.



Generators/Gensets



Stationary Generators Fuel Consumption Reduced 4% to 12%

Increase Payload or Kilowatts Per Gallon /Liter

Reduce Fuel Consumption and Exhaust Borne Pollution



Extend Engine Life 20% Between Rebuilds



Cummins 1250 kVA Generator

Testing Performed Independently at HBL Power Systems
Limited, Nanigaon India.

Baseline Data:

Running Hours 844 Hours - KWH Generated 571,930

Fuel Consumed in Liters 182,601

Average Fuel Consumption / Hour 217.33

Post Data after Conditioning Period:

Running Hours 229 Hours - KWH Generated 155,433

Fuel Consumed in Liters 45,791

Average Fuel Consumption / Hour 201.00

Result:

7.52% Fuel Consumption Improvement





31.1% Average Improvement in Kilowatts Per Gallon



Summary of Findings

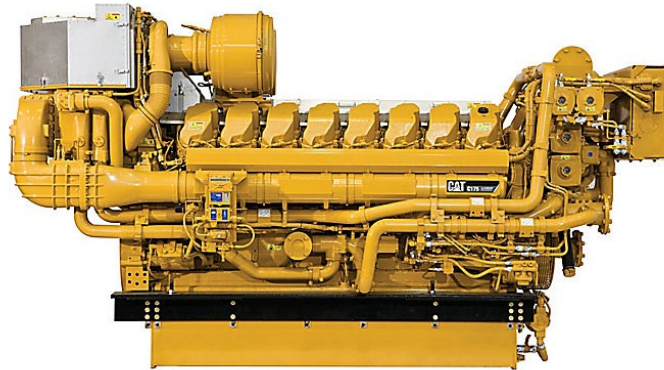
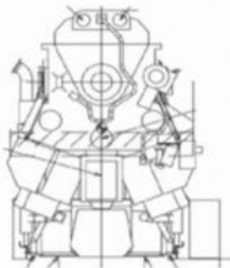
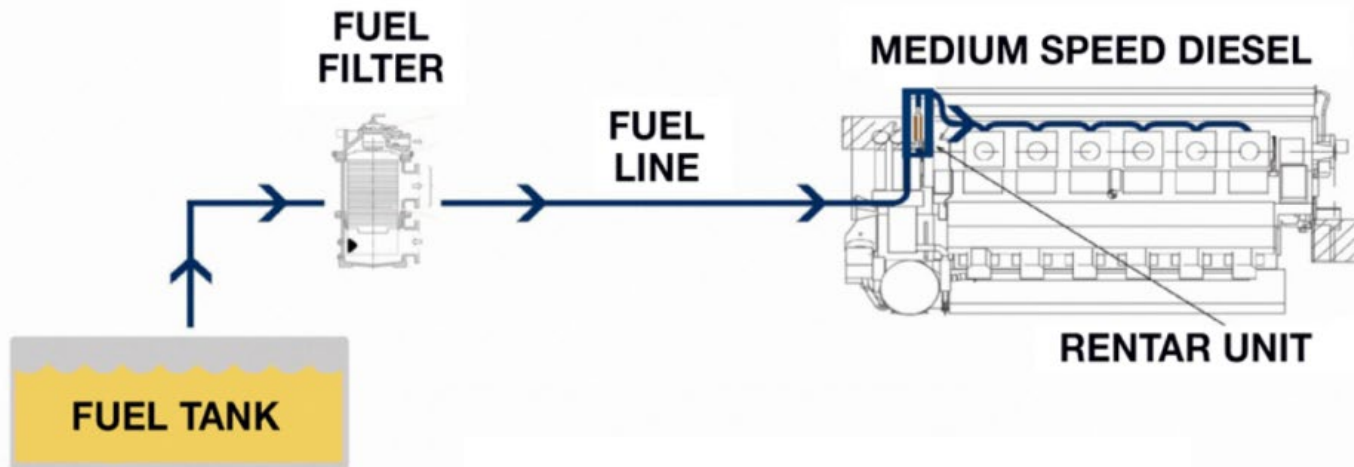
The test was performed at the CEMEX Plant at Terminal Varreux (Port au Prince) Haiti. The test was managed, and all data was collected by CEMEX technicians. The generator used was a Caterpillar 3406 C.

A baseline was created, the catalyst was installed (a conditioning clean-out period was observed) and “post” data information was gathered.

The data collected demonstrated a **31.1% average**

BASE-LINE (Before Installation) December 2015 January 2016 February 2016 March 2016 <u>Base-line Average</u>	7.29 KW per Gallon 8.17 KW per Gallon 8.19 KW per Gallon 8.72 KW per Gallon 8.09 KW per Gallon
April 2016	Installation of the Rentar Fuel Catalyst
Conditioning Period April 2016 May 2016	
POST DATA (After Installation) June 2016 July 2016 August 2016	8.85 KW per Gallon 11.9 KW per Gallon 10.71 KW per Gallon
October 2016 Post Data Average Improvement In Kilowatt Per Gallon	10.61 KW per Gallon 31.1%

Simple Installation



Rentar Case Studies

CASE STUDY



COVANTA ENERGY

Covanta Holding Corporation (NYSE: CVA) is an international owner and operator of Energy-from-Waste power generation projects converting municipal solid waste into renewable energy for numerous communities throughout the United States. 2009 consolidated operating revenues were \$1.55 billion with \$397 million in operating cash flow and adjusted EBITDA of \$515 million.



Installed Rentar Fuel Catalyst on entire fleet of heavy-duty diesel vehicles at 28 plants around the United States.

- 5% reduction in fuel consumption.
- 43.6% reduction in CO₂ emissions.
- 75.9% reduction in CO.
- 47.7% reduction in NO_x
- 52.6% reduction in particulate matter.

CASE STUDY



U.S. ARMY

Located in Hartford County, Maryland on 79,000 acres with research capabilities in Automotive; Environmental Effects & Technologies; Fire Control; Firepower; Support and Survivability/Lethality; Warfighter & Support Equipment.



The Aberdeen Test Center tested Rentar units on a Navistar International 359.9 cu. in., 170 hp. diesel engine and reported the following:

- 3.6% Fuel Consumption improvement.
- 3.6% Extended Range improvement.
- 12% NO_x improvement.
- 14% CO₂ improvement.
- 17.4% CO improvement.
- 12.6% HC improvement.
- 10.9% O₂ improvement.

CASE STUDY



TOYOTA

Toyota Motor Company, established in 1937, is today the world's largest automobile manufacturer by sales (7,051,000 units FY 2009), with 320,808 employees building autos under the DAIHATSU, HINO, LEXUS and TOYOTA brands.



Toyota has installed Rentar Units of all their auto transport trucks operating in the Port(s) of Long Beach & Los Angeles with the following results:

STEADY STATE (Highway Driving)

- 11.3% Fuel Consumption improvement.
- 42.2% Particulate Matter improvement.
- 9.7% CO₂ improvement.
- 33.5% Carbon Monoxide improvement.
- 36.8% Total Hydrocarbon improvement.

Toyota Laboratory Results conducted by EPA & CARB recognized laboratory.



- DP World is the largest SHIPPING PORT management company in the world, They manage more than 80 ports in forty countries. They purchased 92 Rentar Fuel Catalysts for their Dominican Republic Port and over the first year reduced that ports overall fuel cost by 7.5%.

See Test
Study



- Del Monte Freighters have achieved 4.5% fuel reduction through the implementation of the Rentar Fuel Catalyst. As a result, Del-Monte Food Company equipped their entire fleet of freighters with the Rentar Fuel Catalyst.

See Test Study

Successfully Operating with the Rare Earth Rentar Fuel Catalyst



Rentar Fuel Catalyst Purchasers



New York City Department of Environmental Protection



OCCIDENTAL CHEMICAL



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION



ARCHDIOCESE OF
PHILADELPHIA



'S



United States Department
of Commerce

Credentials



Export Achievement Award



LISTED



Export-Import Bank of the
United States
Official Export Credit Agency



**\$2 Million International
Product Liability
Insurance**

Member



**Economic Development Organization
for the State of Florida**



**California Resource Board
Executive Order (CARB)**



THANK YOU

The Rare Earth Rentar Fuel Catalyst
www.DieselCatalyst.com

Marreg Corporation, Rentar Master Distributor