



Symbol of Quality & Spirit of Master



TAKUMI ***Ignition Coil***

Application Catalog



PREFACE

A word about this catalogue. We have tried to make this catalogue as comprehensive and factual as possible. However, since the time of printing some of the information you'll find here may have been updated. Also, some of the equipment shown or described through this catalogue may have been changed. Further, TAKUMI, reserves the right to make changes at any time without notice.

This catalogue is intended to provide the basic information of TAKUMI spark plugs. It is designed to aid individual who is studying on his or her own. There are so many types of engines in use today, it is reasonable to expect that differences exist in engine components and systems. To avoid undue repetition, the practice of using representative systems and units is carried out throughout this catalogue. Subject matter treatment is from a generalized point of view and should be supplemented by reference to manufacturer's manuals or other textbooks if more detail is desired. This catalogue is not intended to replace, substitute for, or supersede official regulations or the manufacturer's instructions. TAKUMI will not be responsible for any sub-sequences caused by misuse of this catalogue.

No TAKUMI Dealer or other person is authorized or permitted to give or make any statement, assertion or undertaking in relation to the quality, performance characteristics, descriptions or fitness for any purpose of any TAKUMI product which is at variance with any written statement, assertion or undertaking on any of these subjects given or made by TAKUMI in its published sales literature, and TAKUMI does not accept any liability for any such unauthorized action.

TAKUMI has authorized Dealers in many parts for the sale of service parts and the provision of service to owners of TAKUMI's products. Every endeavour is made to ensure that such Dealers carry adequate stocks of service parts, but TAKUMI doesn't make any promise other than that contained in the New Vehicle Warranty given by TAKUMI that such parts or service facilities will be available at any specific location or at any particular time.



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COMPANY INTRODUCTION

(1)TAKUMI Symbol of Quality & Spirit of Master

With 60 years experience in automotive industry, TAKUMI Japan has extended its business from traditional auto parts to new energy section. For many years TAKUMI Japan has been putting quality and performance in high priority and keeping a small group of prestigious clients. However, many customers keep on asking for agency to distribute TAKUMI Japan products. Only recent years, TAKUMI Japan is considering to satisfy customer requirements by granting agency to those qualified applicants.

In order to help customers to be competitive in the market, TAKUMI Japan not only stick to high quality and performance, but also take actions to lower manufacturing cost and operational cost. The target is to cooperate with partners from all over the world to establish global sales network to satisfy customers and end users.

(2)TAKUMI Japan was originally specialized in the design, manufacture and marketing of engine ignition system parts and filtration system parts, later extended its product lines to hybrid batteries, auto cooling system parts, braking system parts, fuel injectors and sensors. Taking advantage of the leading technologies, products from TAKUMI Japan has been obtaining good reputation and gaining customers' satisfaction.

TAKUMI Japan has professional team for international markets and been regularly participating major international exhibitions to help customers to be famous in local markets.

Thanks for worldwide customers, TAKUMI Japan will continue to develop more high quality products to meet customers satisfaction.

SIX DESIGN FAMILIES&SYSTEM



COIL-ON-PLUG
OR PENCIL COIL



COIL ON PLUG
WITH WASTE
SPARK DESIGN



RAIL COIL



DISTRIBUTOR-
BASED IGNITION
SYSTEM



DISTRIBUTORLESS
IGNITION SYSTEM
(DIS)



DISTRIBUTORLESS
IGNITION SYSTEM (DIS)
WITH WASTE
SPARK DESIGN



PLUG TOP- / PENCIL- / SMART- COILS

Single spark ignition coils – also known as plug shaft/connector ignition coils, rod or pencil coil or smartplug-top-coil ignition coils – are directly mounted on the spark plug. Normally no ignition cables are required for this (with the exception of double spark ignition coils), whereby high-voltage connectors are required. In this design, each spark plug has its own ignition coil, which is located directly above the spark plug insulator. This design enables particularly filigree dimensions. Modular, compact, light smart plug-top-coil ignition coils of the latest generation are especially suited with their space-saving geometry for modern downsized engines. Even though they are more compact than larger ignition coils, they generate greater combustion energy and higher ignition voltage. Innovative plastics and the extremely safe connection technology of the components inside the ignition coil body also ensure an even greater reliability and durability.

Single spark ignition coils can be used in engines with both even and uneven numbers of cylinders. However, the system must be synchronized via a camshaft sensor. Single spark ignition coils generate one ignition spark per power stroke. Ignition voltage losses are the lowest of all ignition systems due to the compact design of the single spark coil / spark plug unit and the absence of ignition cables. Single spark coils enable the largest possible range of ignition angle adjustment. The single ignition coil system supports monitoring of misfiring in the ignition system on both the primary and secondary side. Any problems that occur can thus be saved in the control unit, rapidly read out in the workshop via OBD and specifically rectified.



ELECTRONIC DISTRIBUTOR IGNITION COILS

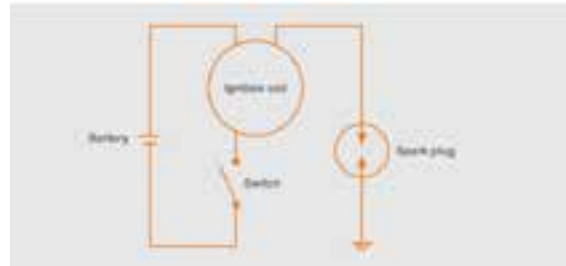
In older ignition systems, the output stage was mounted as a separate component in the engine compartment on the vehicle body or – in the case of rotating high voltage distribution – in or on the ignition distributor. The introduction of static high-voltage distribution and the development of microelectronics made it possible to integrate the output stage into the ignition coil. This results in numerous advantages:

- Diagnostic possibilities
- Ion current signal
- Interference suppression
- Power cut-off
- Current limitation
- Thermal cut-off
- Short circuit recognition
- High voltage stabilization

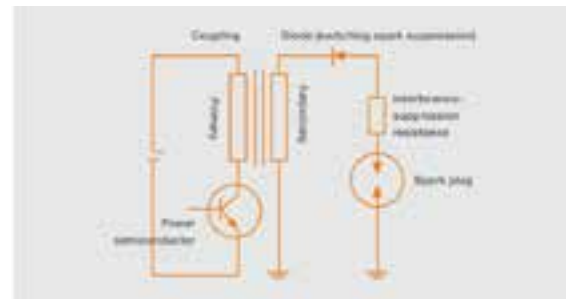


TAKUMI distributor ignition coil with built-on output stage for vehicles with mechanical Ignition distributor.

Contact-controlled ignition system



Electronic ignition system



In a contact-controlled ignition system, the closing time is the time in which the contact breaker is closed. In an electronically controlled ignition system, the closing time is the time in which the primary current is switched on.

Dual-spark ignition coils produce for every two spark plugs/two cylinders each an optimum ignition voltage in different cylinders. The voltage is distributed so that

- The air/fuel mixture of a cylinder is ignited at the end of compression stroke (ignition time) (primary sparks - powerful ignition spark),
- The other cylinder's ignition spark jumps in the exhaust stroke (secondary sparks – low energy).

Double spark ignition coils generate two sparks per crankshaft rotation (primary and secondary spark). No synchronization with the camshaft is required. However, double spark ignition coils are only suitable for engines with even numbers of cylinders. Thus in vehicles with four cylinders and six cylinders, two and three double spark ignition coils respectively are installed.



Double-spark ignition coil.

Cylinder 3 C+
Ignition coil tower C
Pos. spark

Cylinder 2 B
Ignition coil tower B

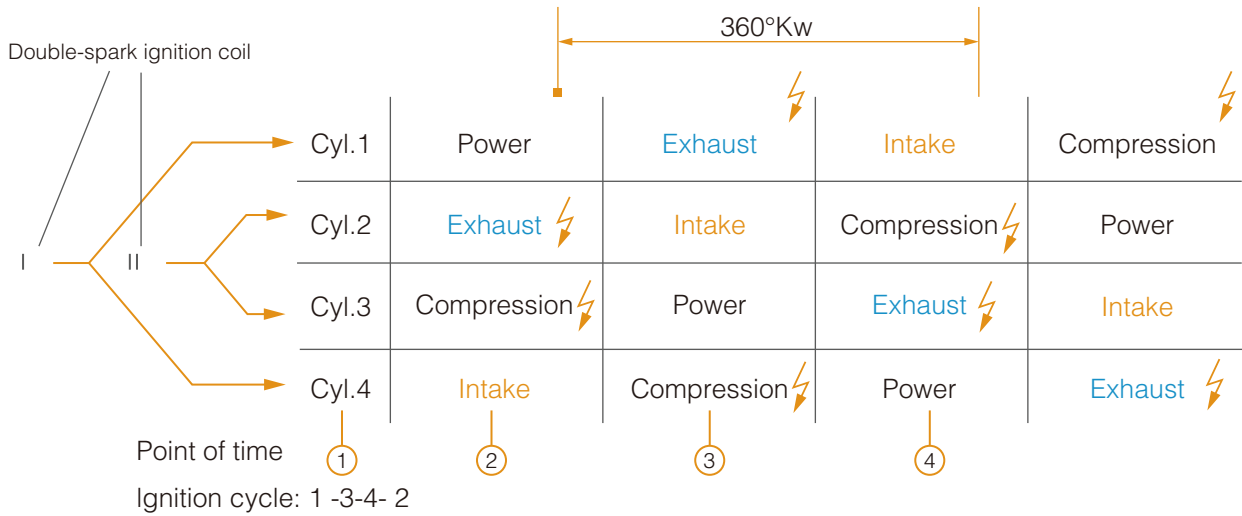
Cylinder 1 A
Ignition coil tower A
Neg. spark

Cylinder 4 D+
Ignition coil tower D
Pos. spark



Double spark ignition coils
2 x 2 for four cylinders

Double spark ignition coil for
2 x 2 spark plugs. For example,
for: Volkswagen, Audi.



IGNITION COIL RAILS

In an ignition coil rail (ignition module), multiple ignition coils – depending on number of cylinders – are arrayed in a common housing (rail). However, these coils are functionally independent and operate like single spark ignition coils. The design advantage is that fewer connecting cables are required. One compact plug connection is sufficient. Moreover, the modularity of the ignition coil rail helps make the entire engine compartment more 'elegant', more clearly arranged and uncluttered.



TAKUMI TRUSTED TECHNOLOGY

Takumi jap Ignition Coils are developed, tested and built in China Hunan to the OE specifications and quality standards. Takumi offers a large range of Ignition Technologies for petrol engines and supplies OEM's with ignition coils for nearly all significant Asian volume applications. The company currently offers a range of over 900 ignition coils to the maintenance and repair markets – needless to say in original equipment quality.



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TAKUMI QUALITY

Products are designed by Hunan in close cooperation with car manufacturers.

- Products are developed according to the specifications of the automotive industry.
- Manufacturing according to ISO standards.
- Products are subjected to special Takumi tests.
- Manufacturing according to up to date production methods.

Fewer emissions, lower fuel consumption, higher ignition voltage, restricted space in the drive unit and engine compartment: The design demands on modern ignition coils are constantly increasing. Although the task of spark-ignition engines remains the same: the fuel / air mixture must be ignited at the right time with the optimum ignition energy so that complete combustion occurs. To reduce fuel consumption and emissions and to increase the efficiency, engine technologies are constantly developed further – and thus also the TAKUMI ignition systems. In particular, Hunan runs its own R&D departments at its Changsha, in which ignition technologies are driven forward in cooperation with the international automotive industry. Thus TAKUMI ignition coils are being precisely adapted to the requirements of modern spark-ignition engines such as turbocharging, downsizing, direct injection, lean mix, high exhaust gas recirculation rates etc. In the process, we are able to fall back on a whole century of valuable experience as an Ignition technology expert.

R & D CAPABILITY

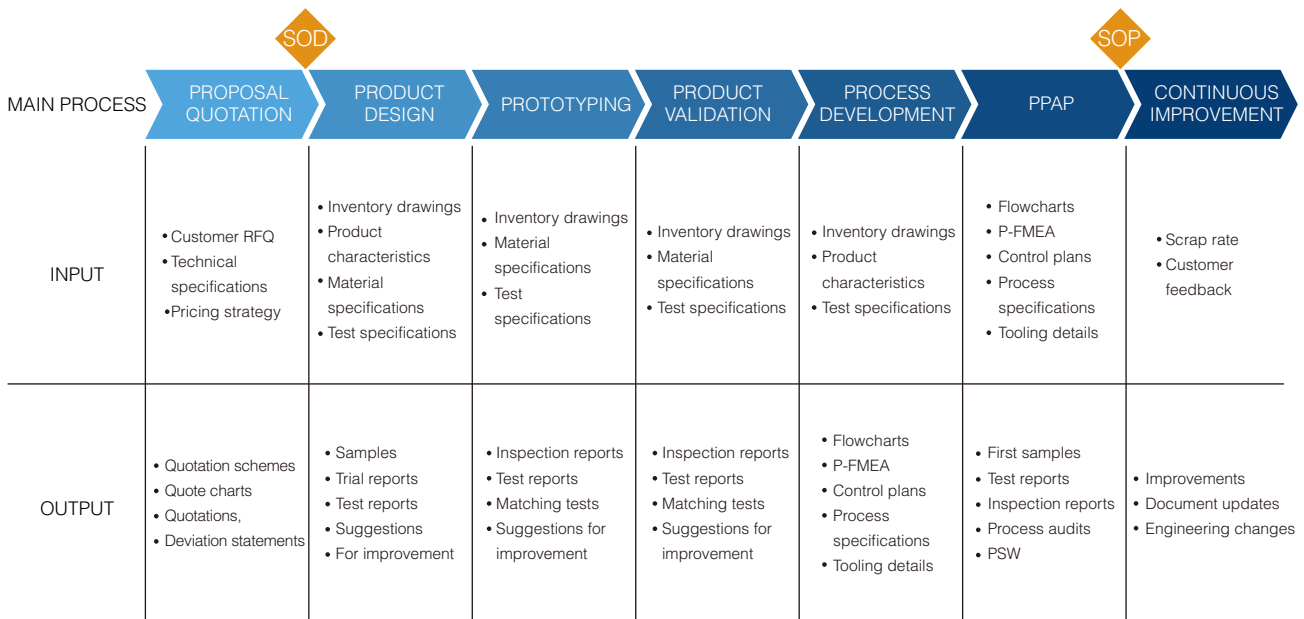
1. PRODUCT DESIGN CAPABILITY



Single spark ignition coils can be used in engines with both even and uneven numbers of cylinders. However, the system must be synchronized via a camshaft sensor. Single spark ignition coils generate one ignition spark per power stroke. Ignition voltage losses are the lowest of all ignition systems due to the compact design of the single spark coil / spark plug unit and the absence of ignition cables. Single spark coils enable the largest possible range of ignition angle adjustment. The single

ignition coil system supports monitoring of misfiring in the ignition system on both the primary and secondary side. Any problems that occur can thus be saved in the control unit, rapidly read out in the workshop via OBD and specifically rectified.

2. PRODUCT DEVELOPMENT METHOD



Synchronous development with engine. Selection and technical solution exchange. Matching Test: high-voltage line -- matching with spark plug and installation hole, ignition coil matching, resistance matching and other ignition coils -- calibration with ECU, ignition energy requirement, boundary condition requirement, etc. Engine durability test (verify product reliability)

IGNITION COIL PRODUCTION



Parts inspection



Spare parts inventory



Low voltage coil winding



High voltage coil winding



Curing



Potting



Work piece preheating



Assembly



Detection



Packaging



Finished product warehouse

TESTING CAPABILITY

TEMPERATURE ALTERNATING IMPACT TEST

Purpose of test and inspection: Test the ability of finished products to resist high and low temperature alternating.



VIBRATION TEST

Purpose of test and inspection: Test the vibration resistance of finished products.

Test and inspection conditions:



SALT SPRAY TEST

Purpose of test and inspection: Test the corrosion resistance of the products.



LOW & HIGH TEMPERATURE TEST

Purpose of test and inspection: Test the ability of ignition coil to resist high temperature or low temperature.



PRODUCT LIST

COIL-ON-PLUG OR PENCIL COIL



TEX-10-099H

Alfa Romeo 55180004
 Valeo 245116
 Fiat Stilo.....2001
 Fiat Palio Waskend.....1996
 Fiat Doblo.....2001
 Fiat Doblo Cargo.....2001
 Fiat Stilo Multi wagon.....2003



TEX-10-031H

UF270,C1231,56028138
 56028138AB,56028138AD
 Dodge Trucks.....00-02
 Jeep.....99-02



TEX-10-030AH

UF653, C1560, 2526180,
 Renaut 0040100052, 7700107177.
 7700113357, 7700875000,
 8200208611, 8200380267
 Sagem 029700-8291. 21595273-2,
 21595273-3, 2526 180A, 2526181A
 Nissan 22448-00QA



TEX-10-029H

Nissan 22448-00QAA, 22448-
 00QAB, 2248-00QAH
 Opel 4408389, 91159996
 Renault 800380267.7700875000,
 8200154186, 8200586671
 Sagem 0040100048, 0040100052,
 7700107177.7700113357,
 8200208611, 029700-8291,
 21595273-2.2526181A,
 8200154186A
 1C01419, IC1001, IG7002



TEX-10-030H

Nissan 22448-00QA 22448-
 00QAB, 22448-000AH
 Opel 4408389, 91159996
 Renault' 7700875000, 8200154186,
 8200380267.8200586671
 Sagem 0040100048, 0040100052,
 7700107177. 7700113357.
 8200208611, 029700-8291,
 21595273-2 2526181A,
 8200154186A
 0040100071, 8200568671



TEX-10-090H

L ADA 05-02-00050,
 2112-370501 0-10
 0221504461.1220 703202,
 2112-3705010.211 20370501010
 Bosch 0221504473
 BOSCHO221 504 461
 Lada110.....95-05
 Lada 111.....00-05,06
 Lada 112.....00-05,06
 Lada Kalina Saloon..... 04-09
 Lada Samaa Forma..... 9406

COIL-ON-PLUG WASTE SPARK DESIGN



TEX-10-056H

FD496, C 1346, 1W4Z-12029-AA,
2W4Z-12029AB, DG476,
XW4Z-12029AA
Jaguar.....2000
Lincon.....00-01



TEX-10-031H

UF270, C1231.56028138.
58028138AB.58028 138AD
Doudge Trucks00-02
Jeep.....99-02



TEX-10-057H

UF90, 0964
Honda 305204R7-A02,
30520-PY3-006
Aura Legend



TEX-10-060H

UF346, C1359, 966021 0101
Porsche 911.....99-01
Porsche Boxster.....97-03



TEX-10-058H

UF171, C1096. 8970968040,
CM11-101, 5C1014,
CM11-101, 5C1014,
AuraSLx.....96-97
Honda Parop.....96-97
Isuzu Rodeo.....96-97
Isuzu Trooper96-97



TEX-10-061H

BOSCH 0221 504006
Fiat 46403328



TEX-10-059H

UF245, C1148, 88921373,
8-97136-325-0, 8-97174-6554-0,
E548A
Acura SLX.....98-99
Honda Paaspar.....98-99
IsuzuAmigo98-99
Isuzu Rodeo.....98-99
Isuzu Trooper.....98-99
Isuzu VehiCROSS.....99-01



TEX-10-059H

UF534, C1676. BAE403H,
NEC000070, NECO00070L
NEC000110. NECI00110L
060740308010.403 H,245121
Land Rower Freelander....02-06

RAIL COIL



TEX-30-001H

Opel 24420622,93180808
0221503471,1208028
Opel Agila.....03-07
Opel Asta G Haxhbackx.....03-04
Opel Corsa C.....03-09
Vaudhal Agila.....00-06



TEX-30-002H

Bosch 0221503014
Bougioord 155003
Opd 1208306,90532618
90543059



TEX-30-004H

UF278, C1415, D587, 1208209,
9118114
GM 90584336, 0221503026
Cadillac Catera.....99-01
Cadillac CTS.....03-04
Cadillac CTS.....03-05
Saturn L serie.....02-05
Saturn LS serie.....00-01
Saturn LW serie.....00-05
Saturn VUE.....02-03



TEX-30-005H

UF279,C1248.D588
0221503027,9117815,1208210,
9118115,90584337
Cadillac Catera.....99-01
Cadillac CTS.....03-04
Saturn L300.....01-05
Saturn LS2.....00
Saturn LW2.....00
Saturn LW300.....01-03
Saturn VUE.....02-03



TEX-40-018H

Bosch 0221503015
0221503472
GM90543253
Opel 1208012,1208020
24420584,93177212,1C07115,
90560110



TEX-40-037H

Opel01208008.9119567
90538194
Opel Astra 1.8
Opel Astra 2.0



TEX-40-040H

UF606, C1706
FIAT 71739725
CROMA, STILO
GENERAL MOTORS 10 458316,
MAGNETI MARELU 060801012010,
608L, BAE 608L
OPEL 11 04 082, 12 08 021,
1208 120, 95 517 924
ASTRA ASTRAGTC, ASTRAH,
ASTRAJ, CORSA, INSIGNA,
MERIVA, MOKKA SIGNUM,
VECTRA, ZAFIRA,
ZAFIRATOURER

DISTRIBUTOR-BASED IGNITION SYSTEM



TEX-10-036H

UF118,C 1035
 Nissan 22433-53F00,22433-65Y10,
 22433-65Y1093, 2433-55Y00
 Nissan
 Nissan 240SX.....91-94
 Nissan Altima93-97
 Nissan NX91-93
 Nissan Sentra.....91-93
 Nissan Tsuru.....91-98



TEX-20-029H

Alfa Romeo 48469863.48755605
 BOSCH 1227030062,1227030071
 0040100309, ZS 309
 Alfa Romeo 156.....96-01
 Alfa Romeo SPIDER.....95-05



TEX-20-020H

UF137,C1213
 0221506444,0221506445
 Mercedes Benz 0001587503
 0001587003,
 Mercedes Benz 0001587503
 Mercedes-Benz 300CE93
 Mercedes-Benz 300E93
 Mercedes-Benz 300TE93
 Mercedes-Benz C23097



TEX-11-005H

UF262,UF-262T,C 1251.10457730,
 19005218, D585, 12563293
 ChewGMC Trucks.....92-02
 Buick Rainier.....04-05
 Cadillac Escalade.....02-06
 Cadillac Escalade ESV.....02-06
 Cadillac Escalade EXT.....02-06
 ChevroletAvalanche 1500...02-06
 ChevroletAvalanche 2500...02-06



TEX-11-002H

UF192, C1144, 12556450,
 12558948, 392881732, D580
 Cadillac CTS.....04-05
 Chevrolet Avalanche 2500..... 02
 Chevrolet C3500.....01-03
 Chevrolet C3500HD.....01-03
 Chevrolet C6500 Kodiak.....99-00
 Chevrolet C7500 Kodiak.....99-00
 Chevrolet Camaro.....98-02
 Chevrolet Corvette.....97-04



TEX-11-007H

BOSCH 0221601001,0221601002
 Seat 86705105A
 701905104,701905104A,
 245093, 0986 221 002
 SEAT-TOLEDO1(1L).....93-96
 PEUGEOT-4051(15B)-1.6....89-92
 PEUGEOT-4051Beak.....16.92-96



TEX-10-139H

Hitach CM1T-231
 30500P2AJ01
 HONDA- CMIC VIIHatchback (EJ,
 EK)-1.5i(EK3).....95-05



TEX-10-035H

UF41,C930
 G601-18-100,G601-18-10X
 G602-18-10X,G23-18-10X,IG4023
 Mazda 323.....89-94
 Mazda 828.....92-95



SYMBOL OF QUALITY SPIRIT OF MASTER

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