

Spark Plug Warranty Pre-Check Sheet

Version: 2.0 / Date: January 2026

Report number:

Part number:

Step 1: Check origin

Is it a genuine **DENSO** Spark plug?

Yes

☐

No

☐

If No: **No warranty**

Step 2: Documents & application check

Are the right documents available? (including Diagnostic sheet)?

Yes

☐

No

☐

Is it the right vehicle application?

Yes

☐

No

☐

If No: **No warranty**

Step 3: Damage

Is the spark plug damaged on outside
(cracked ceramic / bended terminal / damaged hexagon)?

Yes

☐

No

☐

Is the insulator loose?

Yes

☐

No

☐

If Yes: **No warranty**

Step 4: Gasket thicknes

Is the gasket correctly compressed?

Yes

☐

No

☐

If No: **No warranty**

Step 5: Appearance

Is the Spark plug nose discolored / contaminated with:

White deposit (coolant)?

Yes

☐

No

☐

Deep black deposit / shiny carbon fouling (Oil consumption)?

Yes

☐

No

☐

Red deposit or yellow (NON recommended chemicals/additives)?

Yes

☐

No

☐

Is the negative electrode discolored / blue (overheating)?

Yes

☐

No

☐

Is the negative electrode or center electrode burned/melted (overheating)?

Yes

☐

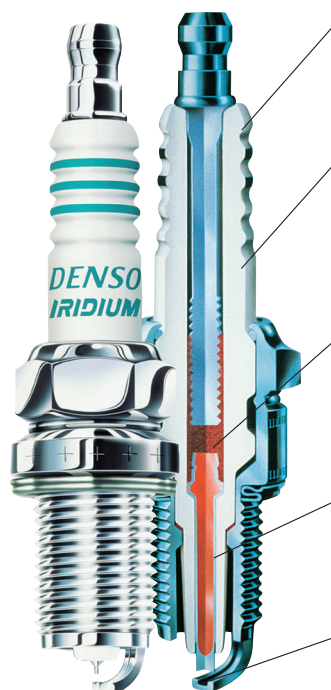
No

☐

If Yes: **No warranty**

End of the investigation

Characteristics DENSO Spark Plugs



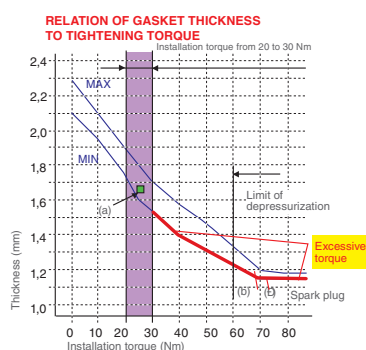
The insulators are made from a highly purified alumina powder, which has exceptional insulation and thermal conductivity. Another advantage of this material is its great physical strength.

The five-rib design prevents flashover and reduces voltage loss. It offers 20% more insulation than conventional plugs. This improves performance, especially in wet and damp conditions, and in plugs with a large gap operating under high voltage. The ribs are rounded to make them more resistant to breakage.

A special mixture of copper and glass powder bonds the centre electrode and insulator together for a gasket seal. This seal has high electrical and thermal conductivity, and contributes to an even heat distribution. The seal also prevents escape of hot combustion gases.

The centre electrode is made of a wear-resistant nickel-chrome binary alloy with a deeply inserted copper core. This gives the centre electrode high resistance against overheating and increases the operating range.

The gap formed by the U-groove provides extra space which is filled by the spark. This gives the flame kernel more room to expand, creating a bigger and hotter flame front. The result is a more complete combustion.



Summary:

- Spark Plugs with rotating insulator were over tightened, which is concluded from too small thickness of gasket
- To avoid such effect DENSO recommends to apply correct tightening torque

Gasket thickness check

Measure the gasket thickness at approximately 4-5 different spots around the gasket.

Calculate the average value from these measurements, which represents the true thickness.

Compare the average thickness with the table on page 2 to determine the used installation torque.



Gasket thickness vs torque

	Gasket (mm)	Torque (N.m)	Gasket (mm)	Torque (N.m)
	2.28	0	1.70	29.43
	2.26	1.2753	1.68	30.411
	2.24	2.4525	1.66	31.392
	2.22	3.7278	1.64	32.373
	2.20	4.905	1.62	33.354
	2.18	6.1803	1.60	34.335
	2.16	7.3575	1.58	35.1198
M8	2.14	8.6328	1.56	35.9046
	2.12	9.81	1.54	36.6894
M10	2.10	10.8891	1.52	37.4742
	2.08	10.93815	1.50	38.259
	2.06	10.9872	1.48	40.221
	2.04	11.0853	1.46	42.0849
	2.02	11.1834	1.44	44.0469
	2.00	14.715	1.42	45.9108
M12	1.98	15.696	1.40	47.8728
	1.96	16.677	1.38	50.4234
	1.94	17.658	1.36	52.974
	1.92	18.639	1.34	55.5246
	1.90	19.62	1.32	58.1733
M14	1.88	20.601	1.30	60.70428
	1.86	21.582	1.28	64.0593
	1.84	22.563	1.26	67.2966
	1.82	23.7402	1.24	70.632
	1.80	24.9174	1.22	73.9674
	1.78	25.8003	1.20	77.25375
	1.76	26.6832	1.18	78.48
	1.74	27.6642	1.16	±80
	1.72	28.5471	1.12	>80

Step 1: Check origin

Is it a genuine **DENSO Spark plug**?
(If NO, the claim is rejected)

- * DENSO name must be on the unit / all other names - claim is rejected
- * If DENSO cannot determine if the Spark plug is genuine, claim will be rejected

Step 2: Documents & application check

Are the right documents available? (including Diagnostic sheet)
Is it the right vehicle application?

- * Is the right application used?
Selecting the wrong specification of spark plug will lead to operating issues, such as loss of performance or even serious engine damage.
Check if the correct application is used on www.denso-am.eu

Step 3: Damaged product

Is the spark plug damaged on the outside
(cracked ceramic / bended terminal / damaged (hexagon)

- * Damage to the spark plug will greatly affect the performance of the part

This claim is therefore rejected.



When the insulator is loose --> exhaust gasses leak through the housing (internal leakage).
Root cause is over-torque at installation. Apart from a loose insulator, you will see a fully compressed gasket that confirms over torque.

- * When the insulator is loose there will be no performance of the spark plug

This claim is therefore rejected.



Step 4: Gasket thickness

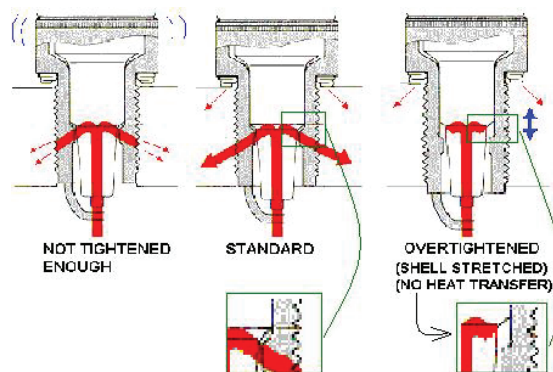
The thickness of the gasket must be between 1.8mm and 1.3mm

If the gasket is over 1.8mm the spark plug was installed with less torque that can cause vibration and possible combustion leakage

A gasket thickness below 1.3 mm indicates over tightening, which causes the a stretched metal housing which leads to over heating.

* When the gasket is fully compressed there will be overheating problems that will cause misfires and bad performance of the spark plug

This claim is therefore rejected.



Step 5: Appearance



Normal
Appearance:
Light grey or tan deposits and slight electrode erosion.



Carbon fouling
Appearance:
Dry, soft black carbon on the insulator and electrodes.
Results:
Poor starting, misfiring, faulty acceleration.
Possible causes:
Faulty choke leading to an overly rich air-fuel mixture (sounds better than over rich), delayed ignition timing, bad ignition leads, plug Heat Range too cold.



Lead fouling
Appearance:
Yellow or tan cinder-like deposits or a shiny glaze coating on the insulator.
Results:
Misfiring under sudden acceleration or heavy load conditions but no adverse effect under normal operating conditions.
Possible causes:
Use of petrol with high-lead contents.



Over heating
Appearance:
An extremely white insulator with small black deposits and premature electrode erosion.
Results:
Loss of power at high-speed/heavy load.
Possible causes:
Plug insufficiently tightened, engine insufficiently cooled, ignition timing too advanced, plug heat range too hot, severe detonation.



Pre-ignition
Appearance:
A melted or burned centre and/or ground electrode, blistered insulator and aluminum or other metallic deposits on the insulator.
Results:
Loss of power then causing engine damage.
Possible causes:
Much the same as over heating. Pre-ignition takes place when combustion begins before the timed spark occurs.



Fuel-Additives Fouling
Appearance:
Red ground electrode and insulator nose
Results:
Poor starting, misfiring, faulty acceleration and loss of power
Possible causes:
Use of petrol with Fr / Mn additives. Additives are used to increase the octane number (especially in Russia)

* When the spark plugs appear as shown in the pictures, except the NORMAL appearance, the cause of bad performance is not caused by the spark plug

This claim is therefore rejected.