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PUBLIC VERSION

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus […]. Where possible the information omitted has been replaced by ranges of figures or a general description.

To the notifying party

Subject: **Case M.9330 – DENSO / HIROSE**
Commission decision pursuant to Article 6(1)(b) of Council Regulation No 139/2004[1] and Article 57 of the Agreement on the European Economic Area[2]

Dear Sir or Madam,

(1) On 22 July 2019, the European Commission received notification of a proposed concentration pursuant to Article 4 of the Merger Regulation by which Denso Corporation ("Denso", Japan) acquires within the meaning of Article 3(1)(b) of the Merger Regulation sole control of the whole of the Hirose Plant (Japan) by way of purchase of assets (the "Transaction").[3] Denso is designated hereinafter as the "Notifying Party". The Hirose Plant is referred to as the "Target". Denso and Hirose Plant are collectively referred to as the "Parties".

1 OJ L 24, 29.1.2004, p. 1 (the "Merger Regulation"). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ("TFEU") has introduced certain changes, such as the replacement of "Community" by "Union" and "common market" by "internal market". The terminology of the TFEU will be used throughout this decision.

2 OJ L 1, 3.1.1994, p. 3 (the "EEA Agreement").

3 Publication in the Official Journal of the European Union No C 251, 26.07.2019, p. 6.

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1. THE PARTIES & THE OPERATION

(2) Denso is a Japanese manufacturer and supplier of advanced automotive parts and components for automobile manufacturers, non-automotive consumer products and industrial products.

(3) Denso develops, produces and sells: (i) engine control systems, hybrid and electric car drive systems, power supply and starting system parts; (ii) air-conditioning systems for cars, buses and trucks, air purifiers and cooling systems; (iii) products and services regarding information & safety of vehicles; (iv) electronics, sensors and engine control computers; (v) small motors such as windshield wiper systems, power steering and cooling fans; and (vi) non-automotive consumer products such as industrial robots and water heaters.

(4) The Hirose Plant is a manufacturing facility, currently owned by the Toyota Motor Corporation[4] ("Toyota"), which produces semiconductors and electronic components for use in automobiles. Toyota currently uses the entire output of the Hirose Plant exclusively for its own, captive production.

(5) The proposed Transaction involves Denso's acquisition of sole control over all the relevant assets used by the Hirose Plant to develop and manufacture electronic components for automobiles, including the land, factory, manufacturing equipment and intellectual property rights.[5]

(6) The transferred assets also include all the necessary elements required to sell the products manufactured at the Hirose Plant to third-party automobile manufacturers other than Toyota. Denso currently sells automobile components to a number of automobile manufacturers and has all the necessary capabilities (i.e., marketing teams, sales personnel, reputation, distribution network, etc.) to sell the products produced by the Hirose Plant to automobile manufacturers other than Toyota. Following completion of the proposed Transaction, the Notifying Party submits that it intends to use the Hirose Plant to produce products for sale to both Toyota and third parties.

(7) The Transaction will be implemented through a Basic Agreement, executed on 1 June 2018, pursuant to which Denso will acquire the Target. Post-Transaction, Denso will have sole control over the Target. The Transaction therefore constitutes a concentration pursuant to Article 3(1)(b) of the Merger Regulation.

2. EU DIMENSION

(8) The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 000 million.[6] Each of them has an EU-wide turnover in excess of EUR 250 million, but they do not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State. The notified operation therefore has an EU dimension.

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4 Toyota is a Japanese automotive company engaged primarily in the design, manufacture, assembly and sale of passenger vehicles, minivans, commercial vehicles, related parts and accessories.

5 During a transitional period, [Sensitive information regarding future human resources].

6 Turnover calculated in accordance with Article 5 of the Merger Regulation.

3. MARKET DEFINITION

(9) The Parties activities overlap horizontally and are vertically linked on a number of markets in the supply of automotive parts.

(10) The following horizontal overlaps involve affected markets:[7]

(a) Hybrid vehicle ("HV") integrated electronic control units ("HV integrated ECUs") at worldwide level;

(b) Electric power steering electronic control units ("EPS-ECUs") at worldwide level; and

(c) Inverters at worldwide level.

(11) The following vertical relationship involves affected markets:[8]

(a) Upstream: the market for the supply of cooling systems for inverters at worldwide level, and

(b) Downstream: the market for the supply of inverters at worldwide level.

(12) The Parties' activities do not overlap in the EEA. This is because the Hirose Plant does not sell any products in the EEA apart from Valvematics and inverters to a Toyota subsidiary in the EEA, whereas Denso has no sales of inverters in the EEA and no production of Valvematics or any functionally substitutable product.

3.1. Product market definition

3.1.1. Electronic control units ("ECUs")

(13) The Parties activities overlap on (i) HV integrated ECUs at worldwide level and (ii) EPS-ECUs at worldwide level.

(14) The Notifying Party submits that each individual type of ECU constitutes a separate product market based on its specific technologies and non-substitutable applications.

(15) In previous decisions, the Commission has distinguished between different types of ECUs,[9] and this approach will be retained for the purposes of this case.

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7 In addition, although the Parties' activities overlap horizontally, the Transaction will not give rise to affected markets in the following markets where horizontal overlaps between the Parties are below 20%, namely: (i) the oil control valves market at worldwide level; (ii) the fuel saving (Eco-run) ECUs market at worldwide level; (iii) the electronic control fuel injection ECUs market at worldwide level; and (iv) the customized integrated circuits ("Custom ICs") market at worldwide level. These markets will not be discussed further.

8 In addition, although the Parties' activities are vertically linked, the Transaction will not give rise to affected markets in the vertical link at worldwide level between brake-related ECUs produced by the Target which incorporate passive safety Custom ICs produced by both Parties, since the combined market shares of the Parties at either level are below 30%. This vertical link will not be discussed further.

9 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TWO*, paragraph 9; Commission decision of 27 July 2012, COMP/M.6640 – *Delphi/FCI MVL*, paragraphs 34-36; Commission decision of 29 November 2007, COMP/M.4878 – *Continental/Siemens VDO*, paragraphs 11-30.

HV integrated ECUs

(16) The HV integrated ECU is a device that contributes to fuel efficiency of the vehicle where it is mounted, by optimizing outputs of the engine of the vehicle according to load on the vehicle and driving conditions, and by controlling a function that stores driving energy in the battery as electricity when the vehicle slows down.[10]

EPS-ECUs

(17) The electric power steering electronic control unit ("EPS-ECU") controls the electronic power steering system. EPS-ECU is an electronic component that generates the assist torque by the motor for steering operation and reduces the steering effort.[11]

(18) In any event, for the purpose of this decision the Commission considers that the question of the exact market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

3.1.2. Inverters

(19) Generation power control units ("PCUs") manage the electric drive systems of HVs and electric vehicles ("EVs"). They consist of inverters, which incorporate a cooling system, and converters. Inverters convert electricity derived from a direct current source into an alternating current (and vice versa) and converters adjust the electrical voltage appropriately. Inverters are an essential and unique component in every HV and EV as they are used to manage the car's electric drive system.[12]

(20) The Notifying Party submits that inverters are not substitutable with any automotive component performing similar functions, and that the relevant product market is the market for inverters for hybrid and electric vehicles.

(21) In previous decisions, the Commission has concluded that each individual automotive component constitutes a separate product market.[13] This approach will be retained for the purposes of this case.

(22) In any event, for the purpose of this decision the Commission considers that the question of the exact market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

3.1.3. Cooling systems for inverters

(23) As noted above, inverters incorporate a cooling system. These cooling systems are separate and functionally different from the radiator-based engine cooling system, and are not substitutable.[14]

(24) Initially the cooling systems for PCUs (1st and 2nd generation PCUs) were radiator based systems, in which a small cooling radiator was dedicated to cooling the

10 Form CO, paragraph 58.
11 Form CO, paragraph 62.
12 Form CO, paragraph 54.
13 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TWO*, paragraph 9.
14 Form CO, paragraphs 97 and 98.

inverter. However, these less energy-efficient cooling systems are no longer used, and could not be used, for newer inverters with higher performance. Instead, current HV and EV models incorporate either a 3rd generation PCU (incorporating a 3rd generation cooling system) or, less frequently, a 4th generation PCU (incorporating a 4th generation cooling system).[15]

(25) The Notifying Party submits that the relevant product market is the market for cooling systems for 4th generation PCUs as these cooling systems are not substitutable with other PCU cooling systems (or engine cooling systems).

(26) The Notifying Party submits that there is significant differences between the 4th generation cooling systems and the 3rd generation cooling systems, including their design and technology. Moreover, a 3rd generation PCU cooling system cannot be incorporated in a vehicle with a 4th generation PCU and vice versa. Given the different manufacturing processes and know-how required to produce 3rd generation and 4th generation PCU cooling systems, there is no supply-side substitutability. However, the Notifying Party argues that the exact product market definition can be left open as the Transaction would not raise any competition concerns regardless of whether the relevant product market is comprised of 4th generation PCU cooling systems alone, or comprised of both 3rd and 4th generation PCU cooling systems.

(27) In previous decisions, the Commission has concluded that each individual automotive component constitutes a separate product market.[16] This approach will be retained for the purposes of this case and cooling systems for inverters for 4th generation PCUs will be considered as a separate product market.[17]

(28) In any event, for the purpose of this decision the Commission considers that the question of the exact market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

3.2. Geographic market definition

3.2.1. ECUs (HV integrated ECUs and EPS-ECUs)

(29) The Parties activities overlap on (i) HV integrated ECUs at worldwide level and (ii) EPS-ECUs at worldwide level.

(30) The Notifying Party submits that the relevant markets for HV integrated ECUs and EPS-ECUs are at least EEA-wide.

(31) In previous decisions, the Commission has left open whether the geographic market for different types of ECUs is to be considered EEA-wide or worldwide.[18]

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15 Form CO, paragraph 99.

16 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TRW*, paragraph 44.

17 Form CO, paragraph 27 and footnote 42: Denso does not produce Valvematics or any product functionally substitutable with Valvematics. Denso is Toyota's only supplier of cooling systems for 4th generation PCUs. Moreover, Toyota is Denso's only customer and Denso does not sell 3rd generation PCU cooling systems. Therefore, only cooling systems for inverters for 4th generation PCUs constitute the relevant market.

18 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TRW*, paragraph 44.

(32) In any event, for the purpose of this decision the Commission considers that the question of the exact geographic market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

3.2.2. Inverters

(33) The Notifying Party submits that the market for inverters is at least EEA-wide.

(34) In its decisional practice, the Commission has left open the question whether the relevant geographic market for automotive components is EEA or worldwide in scope.[19]

(35) In any event, for the purpose of this decision the Commission considers that the question of the exact geographic market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

3.2.3. Cooling systems for inverters

(36) The Notifying Party submits that the market for cooling systems for inverters is at least EEA-wide.

(37) In its decisional practice, the Commission has left open the question whether the relevant geographic market for automotive components is EEA or worldwide in scope.[20]

(38) In any event, for the purpose of this decision the Commission considers that the question of the exact geographic market definition can be left open, as the Transaction does not give rise to serious doubts as to its compatibility with the internal market.

4. COMPETITIVE ASSESSMENT

4.1. Horizontal non-coordinated effects

(39) By way of introduction, it should be noted that, as explained in paragraph (4), Toyota currently uses the entire output of the Hirose Plant exclusively for its own, captive production. The Transaction provides the Notifying Party with the ability to open this output to third parties and the Notifying Party explained it considers such opportunity to sell the Target's products to the market.

(40) In that sense, the Transaction could result in adding the output to third parties on the various relevant markets. Even in a scenario where the Notifying Party would continue using the entire Target's output to the Toyota Group, the Transaction would appear neutral.

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19 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TRW*, paragraph 44.

20 Commission decision of 12 March 2015, COMP/M.7420 – *ZF/TRW*, paragraph 44.

4.1.1. HV integrated ECUs

(41) The combined market share of the Parties on the market for HV integrated ECUs in 2018 amounted to [30-40]% (Denso [20-30]% and Hirose Plant [0-5]%) at worldwide level.[21]

(42) Given the limited increment brought by the Transaction, the Commission considers that the Transaction does not give rise to serious doubts as to its compatibility with the internal market in relation to the market for HV integrated ECUs at worldwide level.

4.1.2. EPS-ECUs

(43) The combined market share of the Parties on the market for EPS-ECUs in 2018 amounted to [20-30]% (Denso [20-30]% and Hirose Plant [0-5]%) at worldwide level.[22]

(44) Given the moderate market position of the Parties post-Transaction and the marginal increment brought by the Transaction, the Commission considers that the Transaction does not give rise to serious doubts as to its compatibility with the internal market in relation to the market for EPS-ECUs at worldwide level.

4.1.3. Inverters

(45) The combined market share of the Parties on the market for inverters in 2017[23] excluding vertically integrated competitors but including the volumes currently used internally by Toyota and produced by the Target amounted to [40-50]% (Denso [20-30]% and Hirose Plant [20-30]%) at worldwide level.[24]

(46) However, Toyota is currently using the entire inverter output of the Hirose Plant exclusively for its own, captive production. As explained by the Parties, pre-Transaction, Toyota had no incentive to sell inverters to third parties and had no intention or plan to do so. Therefore, there is currently no customer to the Hirose plant that could be harmed by a potential price increase or any other anti-competitive effects post-Transaction.

(47) [Future sales strategy], [Sensitive information and future sales strategy].[25] [Future sales strategy]. Such customers would then benefit from an increase in production capacity to serve the demand for such products on the merchant market.

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21 The Parties' activities in HV integrated ECUs do not overlap in the EEA.

22 The Parties' activities in EPS-ECUs do not overlap in the EEA.

23 The Notifying Party estimates that the market shares have not materially changed in 2018.

24 Form CO, paragraph 125: it should be noted that, pre-Transaction, all of Toyota's inverters produced in the Hirose Plant are supplied internally; Toyota does not sell inverters to any third parties in the EEA or anywhere else in the world. Additionally, Denso does not sell any inverters in the EEA. Thus, the combined party market share and the market share "increment" are merely nominal, i.e. the "increment" is entirely linked to Toyota's previously internal demand for inverters becoming part of the merchant market as a result of the Transaction without any elimination of competition.

25 Form CO, footnote 61: [Future sales strategy]. Rather, they expect the consolidation of the production to result in greater production efficiencies.

(48) Moreover, there are an important number of competitors supplying inverters. Such competitors include large corporations, active at worldwide level such as Mitsubishi Electric, Hyundai Mobis, Bosch, Hitachi Automotive Systems, Calsonic Kansei and others, active on this market and related markets for other automotive components. It is therefore unlikely that the merger would hinder entry or expansion by other market players.

(49) In view of the above, the Commission considers that the Transaction does not give rise to serious doubts as to its compatibility with the internal market in relation to the market for inverters at worldwide level.

4.1.4. Conclusion

(50) In view of the above, the Commission considers that the Transaction does not raise serious doubts as to its compatibility with the internal market as a result of horizontal effects. The market investigation also supported this conclusion.[26]

4.2. Non-horizontal overlaps

(51) The Transaction will give rise to a vertically affected relationship between the markets for cooling systems for inverters (upstream) and inverters (downstream) at worldwide level.

(52) Denso is Hirose Plant's sole supplier of cooling systems for 4th generation PCUs which are used to manage the electric drive systems of HVs and EVs, and comprise the inverter, which incorporates a cooling system, and converters to adjust voltage.

(53) For the Hirose Plant's 4th generation PCUs, the Hirose Plant uses cooling systems specifically produced by Denso for use in Toyota's 4th generation PCUs. Denso does not sell these types of cooling systems, which are developed for Toyota's 4th generation PCUs, to third parties anywhere else in the world, [Future sales strategy].[27] Therefore, the Commission considers that input foreclosure is not likely to arise.

(54) The Hirose Plant sources cooling systems for 4th generation PCUs only from Denso. For the inverters of these 4th generation PCUs, the Hirose Plant has never acquired cooling systems from other manufacturers [Future supply sources], particularly because the cooling systems are specifically made by Denso for the Hirose Plant's 4th generation PCUs.[28] Therefore, the Commission considers that customer foreclosure is not likely to arise.

(55) Even if the market would comprise 3rd and 4th generation PCU cooling systems, because Denso supplies only cooling systems for 4th generation PCUs, its share in a market comprising 3rd generation and 4th generation PCU cooling systems would be very limited, and not materially exceed [10-20]% in 2018. Therefore, the Commission considers that it would not be profitable for the merged entity to engage in a foreclosure strategy.

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26 E-mails of customers and competitors of 24, 26, 29 and 30 July and 7 August 2019.

27 Form CO, paragraph 106.

28 Form CO, paragraph 107.

(56) In view of the above, the Commission considers that the Transaction does not raise serious doubts as to its compatibility with the internal market as a result of non-horizontal effects. The market investigation also supported this conclusion.[29]

5. CONCLUSION

(57) For the above reasons, the European Commission has decided not to oppose the notified operation and to declare it compatible with the internal market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of the Merger Regulation and Article 57 of the EEA Agreement.

For the Commission

(Signed)
Margrethe VESTAGER
Member of the Commission

[29] E-mails of customers and competitors of 24, 26, 29 and 30 July and 7 August 2019.