

## Finite Groups of Order Less Than or Equal to 100

This document contains additional material for the preprint:

*K. Parattu, A. Wingerter, “Tribimaximal Mixing From Small Groups”, [arXiv:1012.2842](https://arxiv.org/abs/1012.2842)*

In [Tab. 1](#) below, we list the 1048 groups of order  $\leq 100$ . The first column gives the GAP ID which is a label that uniquely identifies the group in GAP. The first number in the square brackets is the order of the group, and the second number simply enumerates different groups of the same order.

The second column gives the name of the group. If two or more groups by the same name are isomorphic, we list only one. For the conventions we used in naming the groups and for a non-exhaustive compilation of alternative names common in the physics and mathematics literature see Appendix A of [arXiv:1012.2842](#).

The third column indicates whether the group  $G$  has a 3-dimensional irreducible representation.

The fourth column indicates whether the group  $G$  is a subgroup of  $U(3)$ . If  $G$  is in  $SU(3)$ , an orange check mark is shown (✓), otherwise a blue one (✓).

The fifth and sixth columns indicate whether  $G$  is in  $U(2)$  or  $U(2) \times U(1)$ , respectively (blue check mark). If  $G$  is in  $SU(2)$  or  $SU(2) \times U(1)$ , respectively, the check mark is orange.

The seventh column indicates whether  $G$  contains  $A_4$  as a subgroup. The color of the check marks has no significance.

Note that all Abelian groups are trivially contained in some  $\mathbb{Z}_p \times \mathbb{Z}_q \dots \times \mathbb{Z}_r$ , and the dashes (---) indicate that we *do not state* whether they are subgroups of any  $U(n)$ .

Table 1: The 1048 groups of order  $\leq 100$ . For details, refer to the text preceding this table.

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[1, 1]	1	X	---	---	---	X
[2, 1]	$C_2$	X	---	---	---	X
[3, 1]	$C_3$	X	---	---	---	X
[4, 1]	$C_4$	X	---	---	---	X
[4, 2]	$C_2 \times C_2$	X	---	---	---	X
[5, 1]	$C_5$	X	---	---	---	X
[6, 1]	$S_3$	X	✓	✓	✓	X
[6, 2]	$C_6$	X	---	---	---	X
[7, 1]	$C_7$	X	---	---	---	X
[8, 1]	$C_8$	X	---	---	---	X
[8, 2]	$C_4 \times C_2$	X	---	---	---	X
[8, 3]	$D_4$	X	✓	✓	✓	X

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[8, 4]	$Q_8$	X	✓	✓	✓	X
[8, 5]	$C_2 \times C_2 \times C_2$	X	---	---	---	X
[9, 1]	$C_9$	X	---	---	---	X
[9, 2]	$C_3 \times C_3$	X	---	---	---	X
[10, 1]	$D_5$	X	✓	✓	✓	X
[10, 2]	$C_{10}$	X	---	---	---	X
[11, 1]	$C_{11}$	X	---	---	---	X
[12, 1]	$C_3 \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[12, 2]	$C_{12}$	X	---	---	---	X
[12, 3]	$A_4$	✓	✓	X	X	✓
[12, 4]	$D_6$	X	✓	✓	✓	X
[12, 5]	$C_6 \times C_2$	X	---	---	---	X
[13, 1]	$C_{13}$	X	---	---	---	X
[14, 1]	$D_7$	X	✓	✓	✓	X
[14, 2]	$C_{14}$	X	---	---	---	X
[15, 1]	$C_{15}$	X	---	---	---	X
[16, 1]	$C_{16}$	X	---	---	---	X
[16, 2]	$C_4 \times C_4$	X	---	---	---	X
[16, 3]	$(C_4 \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[16, 4]	$C_4 \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[16, 5]	$C_8 \times C_2$	X	---	---	---	X
[16, 6]	$C_8 \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[16, 7]	$D_8$	X	✓	✓	✓	X
[16, 8]	$QD_8$	X	✓	✓	✓	X
[16, 9]	$Q_{16}$	X	✓	✓	✓	X
[16, 10]	$C_4 \times C_2 \times C_2$	X	---	---	---	X
[16, 11]	$C_2 \times D_4$	X	✓	X	✓	X
[16, 12]	$C_2 \times Q_8$	X	✓	X	✓	X
[16, 13]	$(C_4 \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[16, 14]	$C_2 \times C_2 \times C_2 \times C_2$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[17, 1]	$C_{17}$	X	---	---	---	X
[18, 1]	$D_9$	X	✓	✓	✓	X
[18, 2]	$C_{18}$	X	---	---	---	X
[18, 3]	$C_3 \times S_3$	X	✓	✓	✓	X
[18, 4]	$(C_3 \times C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[18, 5]	$C_6 \times C_3$	X	---	---	---	X
[19, 1]	$C_{19}$	X	---	---	---	X
[20, 1]	$C_5 \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[20, 2]	$C_{20}$	X	---	---	---	X
[20, 3]	$C_5 \rtimes_{\varphi} C_4$	X	X	X	X	X
[20, 4]	$D_{10}$	X	✓	✓	✓	X
[20, 5]	$C_{10} \times C_2$	X	---	---	---	X
[21, 1]	$C_7 \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[21, 2]	$C_{21}$	X	---	---	---	X
[22, 1]	$D_{11}$	X	✓	✓	✓	X
[22, 2]	$C_{22}$	X	---	---	---	X
[23, 1]	$C_{23}$	X	---	---	---	X
[24, 1]	$C_3 \rtimes_{\varphi} C_8$	X	✓	✓	✓	X
[24, 2]	$C_{24}$	X	---	---	---	X
[24, 3]	$SL(2, 3)$	✓	✓	✓	✓	X
[24, 4]	$C_3 \rtimes_{\varphi} Q_8$	X	✓	✓	✓	X
[24, 5]	$C_4 \times S_3$	X	✓	✓	✓	X
[24, 6]	$D_{12}$	X	✓	✓	✓	X
[24, 7]	$C_2 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[24, 8]	$(C_6 \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[24, 9]	$C_{12} \times C_2$	X	---	---	---	X
[24, 10]	$C_3 \times D_4$	X	✓	✓	✓	X
[24, 11]	$C_3 \times Q_8$	X	✓	✓	✓	X
[24, 12]	$S_4$	✓	✓	X	X	✓
[24, 13]	$C_2 \times A_4$	✓	✓	X	X	✓

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[24, 14]	$C_2 \times C_2 \times S_3$	X	✓	X	✓	X
[24, 15]	$C_6 \times C_2 \times C_2$	X	---	---	---	X
[25, 1]	$C_{25}$	X	---	---	---	X
[25, 2]	$C_5 \times C_5$	X	---	---	---	X
[26, 1]	$D_{13}$	X	✓	✓	✓	X
[26, 2]	$C_{26}$	X	---	---	---	X
[27, 1]	$C_{27}$	X	---	---	---	X
[27, 2]	$C_9 \times C_3$	X	---	---	---	X
[27, 3]	$(C_3 \times C_3) \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[27, 4]	$C_9 \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[27, 5]	$C_3 \times C_3 \times C_3$	X	---	---	---	X
[28, 1]	$C_7 \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[28, 2]	$C_{28}$	X	---	---	---	X
[28, 3]	$D_{14}$	X	✓	✓	✓	X
[28, 4]	$C_{14} \times C_2$	X	---	---	---	X
[29, 1]	$C_{29}$	X	---	---	---	X
[30, 1]	$C_5 \times S_3$	X	✓	✓	✓	X
[30, 2]	$C_3 \times D_5$	X	✓	✓	✓	X
[30, 3]	$D_{15}$	X	✓	✓	✓	X
[30, 4]	$C_{30}$	X	---	---	---	X
[31, 1]	$C_{31}$	X	---	---	---	X
[32, 1]	$C_{32}$	X	---	---	---	X
[32, 2]	$(C_4 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[32, 3]	$C_8 \times C_4$	X	---	---	---	X
[32, 4]	$C_8 \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[32, 5]	$(C_8 \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[32, 6]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 7]	$(C_8 \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 8]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[32, 9]	$(C_8 \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[32, 10]	$Q_8 \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[32, 11]	$(C_4 \times C_4) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[32, 12]	$C_4 \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[32, 13]	$C_8 \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[32, 14]	$C_8 \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[32, 15]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2)$	X	✓	✓	✓	X
[32, 16]	$C_{16} \times C_2$	X	---	---	---	X
[32, 17]	$C_{16} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[32, 18]	$D_{16}$	X	✓	✓	✓	X
[32, 19]	$QD_{16}$	X	✓	✓	✓	X
[32, 20]	$Q_{32}$	X	✓	✓	✓	X
[32, 21]	$C_4 \times C_4 \times C_2$	X	---	---	---	X
[32, 22]	$C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[32, 23]	$C_2 \times (C_4 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[32, 24]	$(C_4 \times C_4) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[32, 25]	$C_4 \times D_4$	X	✓	X	✓	X
[32, 26]	$C_4 \times Q_8$	X	✓	X	✓	X
[32, 27]	$(C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 28]	$(C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 29]	$(C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 30]	$(C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 31]	$(C_4 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 32]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	X	X	X	X	X
[32, 33]	$(C_4 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 34]	$(C_4 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 35]	$C_4 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[32, 36]	$C_8 \times C_2 \times C_2$	X	---	---	---	X
[32, 37]	$C_2 \times (C_8 \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[32, 38]	$(C_8 \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[32, 39]	$C_2 \times D_8$	X	✓	X	✓	X

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[32, 40]	$C_2 \times QD_8$	X	✓	X	✓	X
[32, 41]	$C_2 \times Q_{16}$	X	✓	X	✓	X
[32, 42]	$(C_8 \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[32, 43]	$(C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 44]	$(C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 45]	$C_4 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[32, 46]	$C_2 \times C_2 \times D_4$	X	X	X	X	X
[32, 47]	$C_2 \times C_2 \times Q_8$	X	X	X	X	X
[32, 48]	$C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[32, 49]	$(C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 50]	$(C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[32, 51]	$C_2 \times C_2 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[33, 1]	$C_{33}$	X	---	---	---	X
[34, 1]	$D_{17}$	X	✓	✓	✓	X
[34, 2]	$C_{34}$	X	---	---	---	X
[35, 1]	$C_{35}$	X	---	---	---	X
[36, 1]	$C_9 \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[36, 2]	$C_{36}$	X	---	---	---	X
[36, 3]	$(C_2 \times C_2) \rtimes_{\varphi} C_9$	✓	✓	X	X	X
[36, 4]	$D_{18}$	X	✓	✓	✓	X
[36, 5]	$C_{18} \times C_2$	X	---	---	---	X
[36, 6]	$C_3 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	✓	✓	X
[36, 7]	$(C_3 \times C_3) \rtimes_{\varphi} C_4$	X	X	X	X	X
[36, 8]	$C_{12} \times C_3$	X	---	---	---	X
[36, 9]	$(C_3 \times C_3) \rtimes_{\varphi} C_4$	X	X	X	X	X
[36, 10]	$S_3 \times S_3$	X	X	X	X	X
[36, 11]	$C_3 \times A_4$	✓	✓	X	X	✓
[36, 12]	$C_6 \times S_3$	X	✓	✓	✓	X
[36, 13]	$C_2 \times ((C_3 \times C_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[36, 14]	$C_6 \times C_6$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[37, 1]	$C_{37}$	X	---	---	---	X
[38, 1]	$D_{19}$	X	✓	✓	✓	X
[38, 2]	$C_{38}$	X	---	---	---	X
[39, 1]	$C_{13} \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[39, 2]	$C_{39}$	X	---	---	---	X
[40, 1]	$C_5 \rtimes_{\varphi} C_8$	X	✓	✓	✓	X
[40, 2]	$C_{40}$	X	---	---	---	X
[40, 3]	$C_5 \rtimes_{\varphi} C_8$	X	X	X	X	X
[40, 4]	$C_5 \rtimes_{\varphi} Q_8$	X	✓	✓	✓	X
[40, 5]	$C_4 \times D_5$	X	✓	✓	✓	X
[40, 6]	$D_{20}$	X	✓	✓	✓	X
[40, 7]	$C_2 \times (C_5 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[40, 8]	$(C_{10} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[40, 9]	$C_{20} \times C_2$	X	---	---	---	X
[40, 10]	$C_5 \times D_4$	X	✓	✓	✓	X
[40, 11]	$C_5 \times Q_8$	X	✓	✓	✓	X
[40, 12]	$C_2 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[40, 13]	$C_2 \times C_2 \times D_5$	X	✓	X	✓	X
[40, 14]	$C_{10} \times C_2 \times C_2$	X	---	---	---	X
[41, 1]	$C_{41}$	X	---	---	---	X
[42, 1]	$(C_7 \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[42, 2]	$C_2 \times (C_7 \rtimes_{\varphi} C_3)$	✓	✓	X	X	X
[42, 3]	$C_7 \times S_3$	X	✓	✓	✓	X
[42, 4]	$C_3 \times D_7$	X	✓	✓	✓	X
[42, 5]	$D_{21}$	X	✓	✓	✓	X
[42, 6]	$C_{42}$	X	---	---	---	X
[43, 1]	$C_{43}$	X	---	---	---	X
[44, 1]	$C_{11} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[44, 2]	$C_{44}$	X	---	---	---	X
[44, 3]	$D_{22}$	X	✓	✓	✓	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[44, 4]	$C_{22} \times C_2$	X	---	---	---	X
[45, 1]	$C_{45}$	X	---	---	---	X
[45, 2]	$C_{15} \times C_3$	X	---	---	---	X
[46, 1]	$D_{23}$	X	✓	✓	✓	X
[46, 2]	$C_{46}$	X	---	---	---	X
[47, 1]	$C_{47}$	X	---	---	---	X
[48, 1]	$C_3 \rtimes_{\varphi} C_{16}$	X	✓	✓	✓	X
[48, 2]	$C_{48}$	X	---	---	---	X
[48, 3]	$(C_4 \times C_4) \rtimes_{\varphi} C_3$	✓	✓	X	X	✓
[48, 4]	$C_8 \times S_3$	X	✓	✓	✓	X
[48, 5]	$C_{24} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[48, 6]	$C_{24} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[48, 7]	$D_{24}$	X	✓	✓	✓	X
[48, 8]	$C_3 \rtimes_{\varphi} Q_{16}$	X	✓	✓	✓	X
[48, 9]	$C_2 \times (C_3 \rtimes_{\varphi} C_8)$	X	✓	X	✓	X
[48, 10]	$(C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[48, 11]	$C_4 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[48, 12]	$(C_3 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[48, 13]	$C_{12} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[48, 14]	$(C_{12} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[48, 15]	$(C_3 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[48, 16]	$(C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[48, 17]	$(C_3 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[48, 18]	$C_3 \rtimes_{\varphi} Q_{16}$	X	X	X	X	X
[48, 19]	$(C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[48, 20]	$C_{12} \times C_4$	X	---	---	---	X
[48, 21]	$C_3 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[48, 22]	$C_3 \times (C_4 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[48, 23]	$C_{24} \times C_2$	X	---	---	---	X
[48, 24]	$C_3 \times (C_8 \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X

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Table 1 – continued from previous page

GAP ID	Group	$\mathbf{3}$	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[48, 25]	$C_3 \times D_8$	X	✓	✓	✓	X
[48, 26]	$C_3 \times QD_8$	X	✓	✓	✓	X
[48, 27]	$C_3 \times Q_{16}$	X	✓	✓	✓	X
[48, 28]	$SL(2, 3) \rightarrow G \rightarrow C_2$	✓	✓	✓	✓	X
[48, 29]	$GL(2, 3)$	✓	✓	✓	✓	X
[48, 30]	$A_4 \rtimes_{\varphi} C_4$	✓	✓	X	X	✓
[48, 31]	$C_4 \times A_4$	✓	✓	X	X	✓
[48, 32]	$C_2 \times SL(2, 3)$	✓	✓	X	✓	X
[48, 33]	$SL(2, 3) \rtimes_{\varphi} C_2$	✓	✓	✓	✓	X
[48, 34]	$C_2 \times (C_3 \rtimes_{\varphi} Q_8)$	X	✓	X	✓	X
[48, 35]	$C_2 \times C_4 \times S_3$	X	✓	X	✓	X
[48, 36]	$C_2 \times D_{12}$	X	✓	X	✓	X
[48, 37]	$(C_{12} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[48, 38]	$D_4 \times S_3$	X	X	X	X	X
[48, 39]	$(C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[48, 40]	$Q_8 \times S_3$	X	X	X	X	X
[48, 41]	$(C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[48, 42]	$C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[48, 43]	$C_2 \times ((C_6 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[48, 44]	$C_{12} \times C_2 \times C_2$	X	---	---	---	X
[48, 45]	$C_6 \times D_4$	X	✓	X	✓	X
[48, 46]	$C_6 \times Q_8$	X	✓	X	✓	X
[48, 47]	$C_3 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[48, 48]	$C_2 \times S_4$	✓	✓	X	X	✓
[48, 49]	$C_2 \times C_2 \times A_4$	✓	X	X	X	✓
[48, 50]	$(C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_3$	✓	X	X	X	✓
[48, 51]	$C_2 \times C_2 \times C_2 \times S_3$	X	X	X	X	X
[48, 52]	$C_6 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[49, 1]	$C_{49}$	X	---	---	---	X
[49, 2]	$C_7 \times C_7$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[50, 1]	$D_{25}$	X	✓	✓	✓	X
[50, 2]	$C_{50}$	X	---	---	---	X
[50, 3]	$C_5 \times D_5$	X	✓	✓	✓	X
[50, 4]	$(C_5 \times C_5) \rtimes_{\varphi} C_2$	X	X	X	X	X
[50, 5]	$C_{10} \times C_5$	X	---	---	---	X
[51, 1]	$C_{51}$	X	---	---	---	X
[52, 1]	$C_{13} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[52, 2]	$C_{52}$	X	---	---	---	X
[52, 3]	$C_{13} \rtimes_{\varphi} C_4$	X	X	X	X	X
[52, 4]	$D_{26}$	X	✓	✓	✓	X
[52, 5]	$C_{26} \times C_2$	X	---	---	---	X
[53, 1]	$C_{53}$	X	---	---	---	X
[54, 1]	$D_{27}$	X	✓	✓	✓	X
[54, 2]	$C_{54}$	X	---	---	---	X
[54, 3]	$C_3 \times D_9$	X	✓	✓	✓	X
[54, 4]	$C_9 \times S_3$	X	✓	✓	✓	X
[54, 5]	$((C_3 \times C_3) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[54, 6]	$(C_9 \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[54, 7]	$(C_9 \times C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[54, 8]	$((C_3 \times C_3) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	✓	X	X	X
[54, 9]	$C_{18} \times C_3$	X	---	---	---	X
[54, 10]	$C_2 \times ((C_3 \times C_3) \rtimes_{\varphi} C_3)$	✓	✓	X	X	X
[54, 11]	$C_2 \times (C_9 \rtimes_{\varphi} C_3)$	✓	✓	X	X	X
[54, 12]	$C_3 \times C_3 \times S_3$	X	✓	X	✓	X
[54, 13]	$C_3 \times ((C_3 \times C_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[54, 14]	$(C_3 \times C_3 \times C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[54, 15]	$C_6 \times C_3 \times C_3$	X	---	---	---	X
[55, 1]	$C_{11} \rtimes_{\varphi} C_5$	X	X	X	X	X
[55, 2]	$C_{55}$	X	---	---	---	X
[56, 1]	$C_7 \rtimes_{\varphi} C_8$	X	✓	✓	✓	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[56, 2]	$C_{56}$	X	---	---	---	X
[56, 3]	$C_7 \rtimes_{\varphi} Q_8$	X	✓	✓	✓	X
[56, 4]	$C_4 \times D_7$	X	✓	✓	✓	X
[56, 5]	$D_{28}$	X	✓	✓	✓	X
[56, 6]	$C_2 \times (C_7 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[56, 7]	$(C_{14} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[56, 8]	$C_{28} \times C_2$	X	---	---	---	X
[56, 9]	$C_7 \times D_4$	X	✓	✓	✓	X
[56, 10]	$C_7 \times Q_8$	X	✓	✓	✓	X
[56, 11]	$(C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_7$	X	X	X	X	X
[56, 12]	$C_2 \times C_2 \times D_7$	X	✓	X	✓	X
[56, 13]	$C_{14} \times C_2 \times C_2$	X	---	---	---	X
[57, 1]	$C_{19} \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[57, 2]	$C_{57}$	X	---	---	---	X
[58, 1]	$D_{29}$	X	✓	✓	✓	X
[58, 2]	$C_{58}$	X	---	---	---	X
[59, 1]	$C_{59}$	X	---	---	---	X
[60, 1]	$C_5 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	✓	✓	X
[60, 2]	$C_3 \times (C_5 \rtimes_{\varphi} C_4)$	X	✓	✓	✓	X
[60, 3]	$C_{15} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[60, 4]	$C_{60}$	X	---	---	---	X
[60, 5]	$A_5$	✓	✓	X	X	✓
[60, 6]	$C_3 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[60, 7]	$C_{15} \rtimes_{\varphi} C_4$	X	X	X	X	X
[60, 8]	$S_3 \times D_5$	X	X	X	X	X
[60, 9]	$C_5 \times A_4$	✓	✓	X	X	✓
[60, 10]	$C_6 \times D_5$	X	✓	✓	✓	X
[60, 11]	$C_{10} \times S_3$	X	✓	✓	✓	X
[60, 12]	$D_{30}$	X	✓	✓	✓	X
[60, 13]	$C_{30} \times C_2$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[61, 1]	$C_{61}$	X	---	---	---	X
[62, 1]	$D_{31}$	X	✓	✓	✓	X
[62, 2]	$C_{62}$	X	---	---	---	X
[63, 1]	$C_7 \rtimes_{\varphi} C_9$	✓	✓	X	X	X
[63, 2]	$C_{63}$	X	---	---	---	X
[63, 3]	$C_3 \times (C_7 \rtimes_{\varphi} C_3)$	✓	✓	X	X	X
[63, 4]	$C_{21} \times C_3$	X	---	---	---	X
[64, 1]	$C_{64}$	X	---	---	---	X
[64, 2]	$C_8 \times C_8$	X	---	---	---	X
[64, 3]	$C_8 \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[64, 4]	$((C_8 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 5]	$(C_4 \times C_2) \rtimes_{\varphi} C_8$	X	X	X	X	X
[64, 6]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 7]	$Q_8 \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[64, 8]	$((C_8 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 9]	$(C_2 \times Q_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 10]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 11]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 12]	$(C_4 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 13]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 14]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 15]	$C_8 \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[64, 16]	$C_8 \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[64, 17]	$(C_8 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 18]	$(C_8 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 19]	$C_4 \rightarrow G \rightarrow (C_4 \times C_4)$	X	X	X	X	X
[64, 20]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[64, 21]	$(C_8 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 22]	$C_4 \rightarrow G \rightarrow (C_4 \times C_4)$	X	✓	X	✓	X
[64, 23]	$(C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 24]	$(C_8 \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 25]	$(C_8 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 26]	$C_{16} \times C_4$	X	---	---	---	X
[64, 27]	$C_{16} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[64, 28]	$C_{16} \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 29]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 30]	$(C_{16} \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 31]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 32]	$((C_8 \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 33]	$(C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 34]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 35]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 36]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 37]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 38]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 39]	$Q_{16} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[64, 40]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 41]	$(C_{16} \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 42]	$(C_{16} \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 43]	$C_8 \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 44]	$C_4 \rtimes_{\varphi} C_{16}$	X	✓	X	✓	X
[64, 45]	$C_4 \rightarrow G \rightarrow (C_8 \times C_2)$	X	✓	✓	✓	X
[64, 46]	$C_{16} \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 47]	$C_{16} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[64, 48]	$C_{16} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[64, 49]	$C_8 \rightarrow G \rightarrow (C_4 \times C_2)$	X	✓	✓	✓	X
[64, 50]	$C_{32} \times C_2$	X	---	---	---	X
[64, 51]	$C_{32} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 52]	$D_{32}$	X	✓	✓	✓	X
[64, 53]	$QD_{32}$	X	✓	✓	✓	X

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 54]	$Q_{64}$	✗	✓	✓	✓	✗
[64, 55]	$C_4 \times C_4 \times C_4$	✗	---	---	---	✗
[64, 56]	$C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_4)$	✗	✗	✗	✗	✗
[64, 57]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 58]	$C_4 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	✗	✗	✗	✗	✗
[64, 59]	$C_4 \times (C_4 \rtimes_{\varphi} C_4)$	✗	✗	✗	✗	✗
[64, 60]	$(C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 61]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 62]	$((C_4 \times C_2) \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 63]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 64]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 65]	$(C_4 \times C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 66]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 67]	$(C_4 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 68]	$(C_4 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 69]	$(C_4 \times C_4 \times C_2) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 70]	$(C_4 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 71]	$(C_4 \times C_4 \times C_2) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 72]	$(C_2 \times Q_8) \rtimes_{\varphi} C_4$	✗	✗	✗	✗	✗
[64, 73]	$(C_2 \times C_2 \times D_4) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 74]	$(C_2 \times C_2 \times Q_8) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 75]	$(C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 76]	$(C_4 \times C_2) \rtimes_{\varphi} Q_8$	✗	✗	✗	✗	✗
[64, 77]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 78]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 79]	$(C_2 \times C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	✗	✗	✗	✗	✗
[64, 80]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[64, 81]	$(C_2 \times C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	✗	✗	✗	✗	✗
[64, 82]	$(C_2 \times C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	✗	✗	✗	✗	✗
[64, 83]	$C_8 \times C_4 \times C_2$	✗	---	---	---	✗

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 84]	$C_2 \times (C_8 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[64, 85]	$C_4 \times (C_8 \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 86]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 87]	$C_2 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 88]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 89]	$(C_8 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 90]	$C_2 \times (((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 91]	$((((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 92]	$C_2 \times ((C_8 \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 93]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[64, 94]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 95]	$C_2 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 96]	$C_2 \times (Q_8 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[64, 97]	$(C_8 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 98]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 99]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 100]	$(Q_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 101]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 102]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 103]	$C_2 \times (C_4 \rtimes_{\varphi} C_8)$	X	X	X	X	X
[64, 104]	$(C_4 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 105]	$(C_4 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 106]	$C_2 \times (C_8 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[64, 107]	$C_2 \times (C_8 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[64, 108]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 109]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 110]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2)$	X	✓	X	✓	X
[64, 111]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 112]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[64, 113]	$(C_4 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X

Continued on next page

Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 114]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 115]	$C_8 \times D_4$	X	✓	X	✓	X
[64, 116]	$(C_8 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 117]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 118]	$C_4 \times D_8$	X	✓	X	✓	X
[64, 119]	$C_4 \times QD_8$	X	✓	X	✓	X
[64, 120]	$C_4 \times Q_{16}$	X	✓	X	✓	X
[64, 121]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 122]	$Q_{16} \rtimes_{\varphi} C_4$	X	X	X	X	X
[64, 123]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 124]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 125]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 126]	$C_8 \times Q_8$	X	✓	X	✓	X
[64, 127]	$C_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 128]	$(C_2 \times C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 129]	$(C_2 \times C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 130]	$(C_2 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 131]	$(C_2 \times QD_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 132]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 133]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 134]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 135]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 136]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 137]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 138]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2 \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 139]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2 \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 140]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 141]	$(C_2 \times QD_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 142]	$(Q_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 143]	$C_4 \rtimes_{\varphi} Q_{16}$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 144]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 145]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 146]	$(C_8 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 147]	$(C_8 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 148]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 149]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 150]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 151]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 152]	$(C_2 \times QD_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 153]	$(C_2 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 154]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 155]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 156]	$Q_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 157]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 158]	$Q_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 159]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 160]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	X	X	X	X	X
[64, 161]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 162]	$(C_2 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 163]	$((C_8 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 164]	$(Q_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 165]	$(Q_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 166]	$(C_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 167]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 168]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	X	X	X	X	X
[64, 169]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 170]	$(Q_8 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 171]	$((C_8 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 172]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	X	X	X	X	X
[64, 173]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 174]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 175]	$C_4 \rtimes_{\varphi} Q_{16}$	X	X	X	X	X
[64, 176]	$(C_8 \times C_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 177]	$(C_2 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 178]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 179]	$C_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 180]	$(C_4 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)$	X	X	X	X	X
[64, 181]	$C_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 182]	$C_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 183]	$C_{16} \times C_2 \times C_2$	X	---	---	---	X
[64, 184]	$C_2 \times (C_{16} \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 185]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 186]	$C_2 \times D_{16}$	X	✓	X	✓	X
[64, 187]	$C_2 \times QD_{16}$	X	✓	X	✓	X
[64, 188]	$C_2 \times Q_{32}$	X	✓	X	✓	X
[64, 189]	$(C_{16} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[64, 190]	$(C_2 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 191]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 192]	$C_4 \times C_4 \times C_2 \times C_2$	X	---	---	---	X
[64, 193]	$C_2 \times C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 194]	$C_2 \times C_2 \times (C_4 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[64, 195]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 196]	$C_2 \times C_4 \times D_4$	X	X	X	X	X
[64, 197]	$C_2 \times C_4 \times Q_8$	X	X	X	X	X
[64, 198]	$C_4 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 199]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 200]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 201]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 202]	$C_2 \times ((C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 203]	$C_2 \times ((C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 204]	$C_2 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 205]	$C_2 \times ((C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 206]	$(C_4 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 207]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 208]	$C_2 \times ((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2))$	X	X	X	X	X
[64, 209]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 210]	$(C_4 \times C_4 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 211]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 212]	$C_2 \times (C_4 \rtimes_{\varphi} Q_8)$	X	X	X	X	X
[64, 213]	$(C_4 \times C_4 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 214]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 215]	$(C_2 \times C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 216]	$(C_2 \times C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 217]	$(C_2 \times C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 218]	$(C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 219]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 220]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 221]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 222]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 223]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 224]	$((C_2 \times Q_8) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 225]	$(C_4 \rtimes_{\varphi} Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 226]	$D_4 \times D_4$	X	X	X	X	X
[64, 227]	$(C_2 \times C_2 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 228]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 229]	$(C_2 \times C_2 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 230]	$Q_8 \times D_4$	X	X	X	X	X
[64, 231]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 232]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 233]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 234]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 235]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 236]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 237]	$(C_4 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 238]	$Q_8 \rtimes_{\varphi} Q_8$	X	X	X	X	X
[64, 239]	$Q_8 \times Q_8$	X	X	X	X	X
[64, 240]	$(C_4 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 241]	$((C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 242]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 243]	$((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 244]	$((C_4 \times C_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 245]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2 \times C_2)$	X	X	X	X	X
[64, 246]	$C_8 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[64, 247]	$C_2 \times C_2 \times (C_8 \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 248]	$C_2 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 249]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 250]	$C_2 \times C_2 \times D_8$	X	X	X	X	X
[64, 251]	$C_2 \times C_2 \times QD_8$	X	X	X	X	X
[64, 252]	$C_2 \times C_2 \times Q_{16}$	X	X	X	X	X
[64, 253]	$C_2 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[64, 254]	$C_2 \times ((C_2 \times D_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 255]	$C_2 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 256]	$(C_2 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 257]	$(C_2 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 258]	$(C_2 \times QD_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 259]	$(C_2 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 260]	$C_4 \times C_2 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[64, 261]	$C_2 \times C_2 \times C_2 \times D_4$	X	X	X	X	X
[64, 262]	$C_2 \times C_2 \times C_2 \times Q_8$	X	X	X	X	X
[64, 263]	$C_2 \times C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[64, 264]	$C_2 \times ((C_2 \times D_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 265]	$C_2 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[64, 266]	$(C_2 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[64, 267]	$C_2 \times C_2 \times C_2 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[65, 1]	$C_{65}$	X	---	---	---	X
[66, 1]	$C_{11} \times S_3$	X	✓	✓	✓	X
[66, 2]	$C_3 \times D_{11}$	X	✓	✓	✓	X
[66, 3]	$D_{33}$	X	✓	✓	✓	X
[66, 4]	$C_{66}$	X	---	---	---	X
[67, 1]	$C_{67}$	X	---	---	---	X
[68, 1]	$C_{17} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[68, 2]	$C_{68}$	X	---	---	---	X
[68, 3]	$C_{17} \rtimes_{\varphi} C_4$	X	X	X	X	X
[68, 4]	$D_{34}$	X	✓	✓	✓	X
[68, 5]	$C_{34} \times C_2$	X	---	---	---	X
[69, 1]	$C_{69}$	X	---	---	---	X
[70, 1]	$C_7 \times D_5$	X	✓	✓	✓	X
[70, 2]	$C_5 \times D_7$	X	✓	✓	✓	X
[70, 3]	$D_{35}$	X	✓	✓	✓	X
[70, 4]	$C_{70}$	X	---	---	---	X
[71, 1]	$C_{71}$	X	---	---	---	X
[72, 1]	$C_9 \rtimes_{\varphi} C_8$	X	✓	✓	✓	X
[72, 2]	$C_{72}$	X	---	---	---	X
[72, 3]	$Q_8 \rtimes_{\varphi} C_9$	✓	✓	✓	✓	X
[72, 4]	$C_9 \rtimes_{\varphi} Q_8$	X	✓	✓	✓	X
[72, 5]	$C_4 \times D_9$	X	✓	✓	✓	X
[72, 6]	$D_{36}$	X	✓	✓	✓	X
[72, 7]	$C_2 \times (C_9 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[72, 8]	$(C_{18} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[72, 9]	$C_{36} \times C_2$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[72, 10]	$C_9 \times D_4$	X	✓	✓	✓	X
[72, 11]	$C_9 \times Q_8$	X	✓	✓	✓	X
[72, 12]	$C_3 \times (C_3 \rtimes_{\varphi} C_8)$	X	✓	✓	✓	X
[72, 13]	$(C_3 \times C_3) \rtimes_{\varphi} C_8$	X	X	X	X	X
[72, 14]	$C_{24} \times C_3$	X	---	---	---	X
[72, 15]	$((C_2 \times C_2) \rtimes_{\varphi} C_9) \rtimes_{\varphi} C_2$	✓	X	X	X	X
[72, 16]	$C_2 \times ((C_2 \times C_2) \rtimes_{\varphi} C_9)$	✓	✓	X	X	X
[72, 17]	$C_2 \times C_2 \times D_9$	X	✓	X	✓	X
[72, 18]	$C_{18} \times C_2 \times C_2$	X	---	---	---	X
[72, 19]	$(C_3 \times C_3) \rtimes_{\varphi} C_8$	X	X	X	X	X
[72, 20]	$(C_3 \rtimes_{\varphi} C_4) \times S_3$	X	X	X	X	X
[72, 21]	$(C_3 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 22]	$(C_6 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 23]	$(C_6 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 24]	$(C_3 \times C_3) \rtimes_{\varphi} Q_8$	X	X	X	X	X
[72, 25]	$C_3 \times \text{SL}(2, 3)$	✓	✓	✓	✓	X
[72, 26]	$C_3 \times (C_3 \rtimes_{\varphi} Q_8)$	X	✓	✓	✓	X
[72, 27]	$C_{12} \times S_3$	X	✓	✓	✓	X
[72, 28]	$C_3 \times D_{12}$	X	✓	✓	✓	X
[72, 29]	$C_6 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[72, 30]	$C_3 \times ((C_6 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[72, 31]	$(C_3 \times C_3) \rtimes_{\varphi} Q_8$	X	X	X	X	X
[72, 32]	$C_4 \times ((C_3 \times C_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[72, 33]	$(C_{12} \times C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 34]	$C_2 \times ((C_3 \times C_3) \rtimes_{\varphi} C_4)$	X	X	X	X	X
[72, 35]	$(C_6 \times C_6) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 36]	$C_{12} \times C_6$	X	---	---	---	X
[72, 37]	$C_3 \times C_3 \times D_4$	X	✓	X	✓	X
[72, 38]	$C_3 \times C_3 \times Q_8$	X	✓	X	✓	X
[72, 39]	$(C_3 \times C_3) \rtimes_{\varphi} C_8$	X	X	X	X	X

Continued on next page

Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[72, 40]	$(S_3 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[72, 41]	$(C_3 \times C_3) \rtimes_{\varphi} Q_8$	X	X	X	X	X
[72, 42]	$C_3 \times S_4$	✓	✓	X	X	✓
[72, 43]	$(C_3 \times A_4) \rtimes_{\varphi} C_2$	✓	X	X	X	✓
[72, 44]	$A_4 \times S_3$	✓	X	X	X	✓
[72, 45]	$C_2 \times ((C_3 \times C_3) \rtimes_{\varphi} C_4)$	X	X	X	X	X
[72, 46]	$C_2 \times S_3 \times S_3$	X	X	X	X	X
[72, 47]	$C_6 \times A_4$	✓	✓	X	X	✓
[72, 48]	$C_2 \times C_6 \times S_3$	X	✓	X	✓	X
[72, 49]	$C_2 \times C_2 \times ((C_3 \times C_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[72, 50]	$C_6 \times C_6 \times C_2$	X	---	---	---	X
[73, 1]	$C_{73}$	X	---	---	---	X
[74, 1]	$D_{37}$	X	✓	✓	✓	X
[74, 2]	$C_{74}$	X	---	---	---	X
[75, 1]	$C_{75}$	X	---	---	---	X
[75, 2]	$(C_5 \times C_5) \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[75, 3]	$C_{15} \times C_5$	X	---	---	---	X
[76, 1]	$C_{19} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[76, 2]	$C_{76}$	X	---	---	---	X
[76, 3]	$D_{38}$	X	✓	✓	✓	X
[76, 4]	$C_{38} \times C_2$	X	---	---	---	X
[77, 1]	$C_{77}$	X	---	---	---	X
[78, 1]	$(C_{13} \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[78, 2]	$C_2 \times (C_{13} \rtimes_{\varphi} C_3)$	✓	✓	X	X	X
[78, 3]	$C_{13} \times S_3$	X	✓	✓	✓	X
[78, 4]	$C_3 \times D_{13}$	X	✓	✓	✓	X
[78, 5]	$D_{39}$	X	✓	✓	✓	X
[78, 6]	$C_{78}$	X	---	---	---	X
[79, 1]	$C_{79}$	X	---	---	---	X
[80, 1]	$C_5 \rtimes_{\varphi} C_{16}$	X	✓	✓	✓	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[80, 2]	$C_{80}$	X	---	---	---	X
[80, 3]	$C_5 \rtimes_{\varphi} C_{16}$	X	X	X	X	X
[80, 4]	$C_8 \times D_5$	X	✓	✓	✓	X
[80, 5]	$C_{40} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[80, 6]	$C_{40} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[80, 7]	$D_{40}$	X	✓	✓	✓	X
[80, 8]	$C_5 \rtimes_{\varphi} Q_{16}$	X	✓	✓	✓	X
[80, 9]	$C_2 \times (C_5 \rtimes_{\varphi} C_8)$	X	✓	X	✓	X
[80, 10]	$(C_5 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[80, 11]	$C_4 \times (C_5 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[80, 12]	$(C_5 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[80, 13]	$C_{20} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[80, 14]	$(C_{20} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[80, 15]	$(C_5 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 16]	$(C_5 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 17]	$(C_5 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 18]	$C_5 \rtimes_{\varphi} Q_{16}$	X	X	X	X	X
[80, 19]	$(C_2 \times (C_5 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[80, 20]	$C_{20} \times C_4$	X	---	---	---	X
[80, 21]	$C_5 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[80, 22]	$C_5 \times (C_4 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[80, 23]	$C_{40} \times C_2$	X	---	---	---	X
[80, 24]	$C_5 \times (C_8 \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[80, 25]	$C_5 \times D_8$	X	✓	✓	✓	X
[80, 26]	$C_5 \times QD_8$	X	✓	✓	✓	X
[80, 27]	$C_5 \times Q_{16}$	X	✓	✓	✓	X
[80, 28]	$(C_5 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 29]	$(C_5 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 30]	$C_4 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[80, 31]	$C_{20} \rtimes_{\varphi} C_4$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[80, 32]	$C_2 \times (C_5 \rtimes_{\varphi} C_8)$	X	X	X	X	X
[80, 33]	$(C_5 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 34]	$(C_2 \times (C_5 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 35]	$C_2 \times (C_5 \rtimes_{\varphi} Q_8)$	X	✓	X	✓	X
[80, 36]	$C_2 \times C_4 \times D_5$	X	✓	X	✓	X
[80, 37]	$C_2 \times D_{20}$	X	✓	X	✓	X
[80, 38]	$(C_{20} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[80, 39]	$D_4 \times D_5$	X	X	X	X	X
[80, 40]	$(C_2 \times (C_5 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 41]	$Q_8 \times D_5$	X	X	X	X	X
[80, 42]	$(C_4 \times D_5) \rtimes_{\varphi} C_2$	X	X	X	X	X
[80, 43]	$C_2 \times C_2 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[80, 44]	$C_2 \times ((C_{10} \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[80, 45]	$C_{20} \times C_2 \times C_2$	X	---	---	---	X
[80, 46]	$C_{10} \times D_4$	X	✓	X	✓	X
[80, 47]	$C_{10} \times Q_8$	X	✓	X	✓	X
[80, 48]	$C_5 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[80, 49]	$(C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_5$	X	X	X	X	X
[80, 50]	$C_2 \times C_2 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[80, 51]	$C_2 \times C_2 \times C_2 \times D_5$	X	X	X	X	X
[80, 52]	$C_{10} \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[81, 1]	$C_{81}$	X	---	---	---	X
[81, 2]	$C_9 \times C_9$	X	---	---	---	X
[81, 3]	$(C_9 \times C_3) \rtimes_{\varphi} C_3$	✓	X	X	X	X
[81, 4]	$C_9 \rtimes_{\varphi} C_9$	✓	X	X	X	X
[81, 5]	$C_{27} \times C_3$	X	---	---	---	X
[81, 6]	$C_{27} \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[81, 7]	$(C_3 \times C_3 \times C_3) \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[81, 8]	$(C_9 \times C_3) \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[81, 9]	$(C_9 \times C_3) \rtimes_{\varphi} C_3$	✓	✓	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[81, 10]	$(C_3 \times C_3) \rightarrow G \rightarrow (C_3 \times C_3)$	✓	✓	✗	✗	✗
[81, 11]	$C_9 \times C_3 \times C_3$	✗	---	---	---	✗
[81, 12]	$C_3 \times ((C_3 \times C_3) \rtimes_{\varphi} C_3)$	✓	✗	✗	✗	✗
[81, 13]	$C_3 \times (C_9 \rtimes_{\varphi} C_3)$	✓	✗	✗	✗	✗
[81, 14]	$(C_9 \times C_3) \rtimes_{\varphi} C_3$	✓	✓	✗	✗	✗
[81, 15]	$C_3 \times C_3 \times C_3 \times C_3$	✗	---	---	---	✗
[82, 1]	$D_{41}$	✗	✓	✓	✓	✗
[82, 2]	$C_{82}$	✗	---	---	---	✗
[83, 1]	$C_{83}$	✗	---	---	---	✗
[84, 1]	$(C_7 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_3$	✗	✗	✗	✗	✗
[84, 2]	$C_4 \times (C_7 \rtimes_{\varphi} C_3)$	✓	✓	✗	✗	✗
[84, 3]	$C_7 \times (C_3 \rtimes_{\varphi} C_4)$	✗	✓	✓	✓	✗
[84, 4]	$C_3 \times (C_7 \rtimes_{\varphi} C_4)$	✗	✓	✓	✓	✗
[84, 5]	$C_{21} \rtimes_{\varphi} C_4$	✗	✓	✓	✓	✗
[84, 6]	$C_{84}$	✗	---	---	---	✗
[84, 7]	$C_2 \times ((C_7 \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2)$	✗	✗	✗	✗	✗
[84, 8]	$S_3 \times D_7$	✗	✗	✗	✗	✗
[84, 9]	$C_2 \times C_2 \times (C_7 \rtimes_{\varphi} C_3)$	✓	✗	✗	✗	✗
[84, 10]	$C_7 \times A_4$	✓	✓	✗	✗	✓
[84, 11]	$(C_{14} \times C_2) \rtimes_{\varphi} C_3$	✓	✓	✗	✗	✓
[84, 12]	$C_6 \times D_7$	✗	✓	✓	✓	✗
[84, 13]	$C_{14} \times S_3$	✗	✓	✓	✓	✗
[84, 14]	$D_{42}$	✗	✓	✓	✓	✗
[84, 15]	$C_{42} \times C_2$	✗	---	---	---	✗
[85, 1]	$C_{85}$	✗	---	---	---	✗
[86, 1]	$D_{43}$	✗	✓	✓	✓	✗
[86, 2]	$C_{86}$	✗	---	---	---	✗
[87, 1]	$C_{87}$	✗	---	---	---	✗
[88, 1]	$C_{11} \rtimes_{\varphi} C_8$	✗	✓	✓	✓	✗
[88, 2]	$C_{88}$	✗	---	---	---	✗

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[88, 3]	$C_{11} \rtimes_{\varphi} Q_8$	X	✓	✓	✓	X
[88, 4]	$C_4 \times D_{11}$	X	✓	✓	✓	X
[88, 5]	$D_{44}$	X	✓	✓	✓	X
[88, 6]	$C_2 \times (C_{11} \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[88, 7]	$(C_{22} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[88, 8]	$C_{44} \times C_2$	X	---	---	---	X
[88, 9]	$C_{11} \times D_4$	X	✓	✓	✓	X
[88, 10]	$C_{11} \times Q_8$	X	✓	✓	✓	X
[88, 11]	$C_2 \times C_2 \times D_{11}$	X	✓	X	✓	X
[88, 12]	$C_{22} \times C_2 \times C_2$	X	---	---	---	X
[89, 1]	$C_{89}$	X	---	---	---	X
[90, 1]	$C_5 \times D_9$	X	✓	✓	✓	X
[90, 2]	$C_9 \times D_5$	X	✓	✓	✓	X
[90, 3]	$D_{45}$	X	✓	✓	✓	X
[90, 4]	$C_{90}$	X	---	---	---	X
[90, 5]	$C_3 \times C_3 \times D_5$	X	✓	X	✓	X
[90, 6]	$C_{15} \times S_3$	X	✓	✓	✓	X
[90, 7]	$C_3 \times D_{15}$	X	✓	✓	✓	X
[90, 8]	$C_5 \times ((C_3 \times C_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[90, 9]	$(C_{15} \times C_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[90, 10]	$C_{30} \times C_3$	X	---	---	---	X
[91, 1]	$C_{91}$	X	---	---	---	X
[92, 1]	$C_{23} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[92, 2]	$C_{92}$	X	---	---	---	X
[92, 3]	$D_{46}$	X	✓	✓	✓	X
[92, 4]	$C_{46} \times C_2$	X	---	---	---	X
[93, 1]	$C_{31} \rtimes_{\varphi} C_3$	✓	✓	X	X	X
[93, 2]	$C_{93}$	X	---	---	---	X
[94, 1]	$D_{47}$	X	✓	✓	✓	X
[94, 2]	$C_{94}$	X	---	---	---	X

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[95, 1]	$C_{95}$	X	---	---	---	X
[96, 1]	$C_3 \rtimes_{\varphi} C_{32}$	X	✓	✓	✓	X
[96, 2]	$C_{96}$	X	---	---	---	X
[96, 3]	$((C_4 \times C_2) \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_3$	✓	X	X	X	✓
[96, 4]	$C_{16} \times S_3$	X	✓	✓	✓	X
[96, 5]	$C_{48} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 6]	$D_{48}$	X	✓	✓	✓	X
[96, 7]	$C_{48} \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 8]	$C_3 \rtimes_{\varphi} Q_{32}$	X	✓	✓	✓	X
[96, 9]	$C_4 \times (C_3 \rtimes_{\varphi} C_8)$	X	✓	X	✓	X
[96, 10]	$(C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[96, 11]	$C_{12} \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[96, 12]	$(C_{12} \times C_4) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 13]	$(C_3 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 14]	$(C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 15]	$(C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 16]	$(C_2 \times (C_3 \rtimes_{\varphi} C_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 17]	$(C_3 \rtimes_{\varphi} Q_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 18]	$C_2 \times (C_3 \rtimes_{\varphi} C_{16})$	X	✓	X	✓	X
[96, 19]	$(C_3 \rtimes_{\varphi} C_{16}) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 20]	$C_8 \times (C_3 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[96, 21]	$(C_3 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_8$	X	✓	X	✓	X
[96, 22]	$C_{24} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[96, 23]	$(C_3 \rtimes_{\varphi} Q_8) \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[96, 24]	$C_{24} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[96, 25]	$C_{24} \rtimes_{\varphi} C_4$	X	✓	X	✓	X
[96, 26]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2)$	X	✓	✓	✓	X
[96, 27]	$(C_{24} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[96, 28]	$(C_{24} \times C_2) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[96, 29]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 30]	$(C_3 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 31]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[96, 32]	$(C_3 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 33]	$(C_3 \times D_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 34]	$(C_3 \rtimes_{\varphi} C_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 35]	$(C_3 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 36]	$C_3 \rtimes_{\varphi} Q_{32}$	X	X	X	X	X
[96, 37]	$(C_2 \times (C_3 \rtimes_{\varphi} C_8)) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[96, 38]	$(C_{12} \times C_2) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 39]	$(C_2 \times (C_3 \rtimes_{\varphi} C_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 40]	$((C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 41]	$((C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 42]	$(C_3 \times Q_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 43]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[96, 44]	$(C_4 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 45]	$C_3 \times ((C_4 \times C_2) \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 46]	$C_{24} \times C_4$	X	---	---	---	X
[96, 47]	$C_3 \times (C_8 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[96, 48]	$C_3 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 49]	$C_3 \times (((C_4 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 50]	$C_3 \times ((C_8 \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 51]	$(C_2 \times C_2) \rightarrow G \rightarrow (C_4 \times C_2)$	X	X	X	X	X
[96, 52]	$C_3 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 53]	$C_3 \times (Q_8 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[96, 54]	$C_3 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[96, 55]	$C_3 \times (C_4 \rtimes_{\varphi} C_8)$	X	✓	X	✓	X
[96, 56]	$C_3 \times (C_8 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[96, 57]	$C_3 \times (C_8 \rtimes_{\varphi} C_4)$	X	✓	X	✓	X
[96, 58]	$C_4 \rightarrow G \rightarrow (C_4 \times C_2)$	X	✓	✓	✓	X
[96, 59]	$C_{48} \times C_2$	X	---	---	---	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 60]	$C_3 \times (C_{16} \rtimes_{\varphi} C_2)$	✗	✓	✓	✓	✗
[96, 61]	$C_3 \times D_{16}$	✗	✓	✓	✓	✗
[96, 62]	$C_3 \times QD_{16}$	✗	✓	✓	✓	✗
[96, 63]	$C_3 \times Q_{32}$	✗	✓	✓	✓	✗
[96, 64]	$((C_4 \times C_4) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	✓	✗	✗	✓
[96, 65]	$A_4 \rtimes_{\varphi} C_8$	✓	✓	✗	✗	✓
[96, 66]	$SL(2, 3) \rtimes_{\varphi} C_4$	✓	✓	✗	✓	✗
[96, 67]	$SL(2, 3) \rtimes_{\varphi} C_4$	✓	✓	✓	✓	✗
[96, 68]	$C_2 \times ((C_4 \times C_4) \rtimes_{\varphi} C_3)$	✓	✓	✗	✗	✓
[96, 69]	$C_4 \times SL(2, 3)$	✓	✓	✗	✓	✗
[96, 70]	$((C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	✗	✗	✗	✓
[96, 71]	$((C_4 \times C_4) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	✗	✗	✗	✓
[96, 72]	$((C_4 \times C_4) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	✗	✗	✗	✓
[96, 73]	$C_8 \times A_4$	✓	✓	✗	✗	✓
[96, 74]	$((C_8 \times C_2) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_3$	✓	✓	✓	✓	✗
[96, 75]	$C_4 \times (C_3 \rtimes_{\varphi} Q_8)$	✗	✓	✗	✓	✗
[96, 76]	$C_{12} \rtimes_{\varphi} Q_8$	✗	✗	✗	✗	✗
[96, 77]	$C_3 \rtimes_{\varphi} ((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2))$	✗	✗	✗	✗	✗
[96, 78]	$C_4 \times C_4 \times S_3$	✗	✓	✗	✓	✗
[96, 79]	$(C_{12} \times C_4) \rtimes_{\varphi} C_2$	✗	✓	✗	✓	✗
[96, 80]	$C_4 \times D_{12}$	✗	✓	✗	✓	✗
[96, 81]	$(C_{12} \times C_4) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 82]	$(C_{12} \times C_4) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 83]	$(C_{12} \times C_4) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 84]	$(C_4 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 85]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 86]	$(C_4 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 87]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \times S_3$	✗	✗	✗	✗	✗
[96, 88]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗
[96, 89]	$(C_2 \times C_2 \times C_2 \times S_3) \rtimes_{\varphi} C_2$	✗	✗	✗	✗	✗

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 90]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 91]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 92]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 93]	$(C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 94]	$(C_3 \rtimes_{\varphi} Q_8) \rtimes_{\varphi} C_4$	X	X	X	X	X
[96, 95]	$C_{12} \rtimes_{\varphi} Q_8$	X	X	X	X	X
[96, 96]	$C_3 \rtimes_{\varphi} ((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2))$	X	X	X	X	X
[96, 97]	$C_3 \rtimes_{\varphi} ((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2))$	X	X	X	X	X
[96, 98]	$(C_4 \rtimes_{\varphi} C_4) \times S_3$	X	X	X	X	X
[96, 99]	$(C_4 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 100]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 101]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 102]	$(C_2 \times C_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 103]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 104]	$(C_3 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 105]	$(C_3 \times (C_4 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 106]	$C_2 \times C_8 \times S_3$	X	✓	X	✓	X
[96, 107]	$C_2 \times (C_{24} \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 108]	$(C_{24} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 109]	$C_2 \times (C_{24} \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 110]	$C_2 \times D_{24}$	X	✓	X	✓	X
[96, 111]	$(C_{24} \times C_2) \rtimes_{\varphi} C_2$	X	✓	✓	✓	X
[96, 112]	$C_2 \times (C_3 \rtimes_{\varphi} Q_{16})$	X	✓	X	✓	X
[96, 113]	$(C_8 \rtimes_{\varphi} C_2) \times S_3$	X	X	X	X	X
[96, 114]	$(C_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 115]	$(C_2 \times D_{12}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 116]	$(C_3 \times (C_8 \rtimes_{\varphi} C_2)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 117]	$D_8 \times S_3$	X	X	X	X	X
[96, 118]	$(D_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 119]	$(C_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 120]	$QD_8 \times S_3$	X	X	X	X	X
[96, 121]	$(D_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 122]	$(Q_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 123]	$(C_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 124]	$Q_{16} \times S_3$	X	X	X	X	X
[96, 125]	$(C_3 \times Q_{16}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 126]	$(C_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 127]	$C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_8)$	X	X	X	X	X
[96, 128]	$C_2 \times ((C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 129]	$C_2 \times C_4 \times (C_3 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 130]	$C_2 \times ((C_3 \rtimes_{\varphi} C_4) \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 131]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 132]	$C_2 \times (C_{12} \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 133]	$(C_4 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	✓	X	✓	X
[96, 134]	$C_2 \times ((C_{12} \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 135]	$C_4 \times ((C_6 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 136]	$(C_{12} \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 137]	$(C_{12} \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 138]	$C_2 \times ((C_3 \times D_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 139]	$(C_6 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 140]	$C_2 \times ((C_3 \rtimes_{\varphi} C_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 141]	$D_4 \times (C_3 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 142]	$(C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 143]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 144]	$(C_2 \times C_2 \times C_2 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 145]	$(C_6 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 146]	$(C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 147]	$(C_6 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 148]	$C_2 \times ((C_3 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 149]	$(C_6 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X

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GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 150]	$C_2 \times (C_3 \rtimes_{\varphi} Q_{16})$	X	X	X	X	X
[96, 151]	$(C_3 \rtimes_{\varphi} C_4) \rtimes_{\varphi} Q_8$	X	X	X	X	X
[96, 152]	$Q_8 \times (C_3 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 153]	$(C_6 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 154]	$(C_6 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 155]	$(C_2 \times (C_3 \rtimes_{\varphi} C_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 156]	$(C_2 \times D_{12}) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 157]	$(C_2 \times (C_3 \rtimes_{\varphi} C_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 158]	$(C_2 \times (C_3 \rtimes_{\varphi} Q_8)) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 159]	$C_2 \times ((C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 160]	$(C_6 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 161]	$C_{12} \times C_4 \times C_2$	X	---	---	---	X
[96, 162]	$C_6 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 163]	$C_6 \times (C_4 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 164]	$C_3 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 165]	$C_{12} \times D_4$	X	✓	X	✓	X
[96, 166]	$C_{12} \times Q_8$	X	✓	X	✓	X
[96, 167]	$C_3 \times ((C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 168]	$C_3 \times ((C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 169]	$C_3 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 170]	$C_3 \times ((C_4 \times C_2 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 171]	$C_3 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 172]	$C_3 \times ((C_2 \times C_2) \rightarrow G \rightarrow (C_2 \times C_2 \times C_2))$	X	X	X	X	X
[96, 173]	$C_3 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 174]	$C_3 \times ((C_4 \times C_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 175]	$C_3 \times (C_4 \rtimes_{\varphi} Q_8)$	X	X	X	X	X
[96, 176]	$C_{24} \times C_2 \times C_2$	X	---	---	---	X
[96, 177]	$C_6 \times (C_8 \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 178]	$C_3 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[96, 179]	$C_6 \times D_8$	X	✓	X	✓	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 180]	$C_6 \times QD_8$	X	✓	X	✓	X
[96, 181]	$C_6 \times Q_{16}$	X	✓	X	✓	X
[96, 182]	$C_3 \times ((C_8 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	✓	✓	X
[96, 183]	$C_3 \times ((C_2 \times D_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 184]	$C_3 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 185]	$A_4 \rtimes_{\varphi} Q_8$	✓	X	X	X	✓
[96, 186]	$C_4 \times S_4$	✓	✓	X	X	✓
[96, 187]	$(C_2 \times S_4) \rtimes_{\varphi} C_2$	✓	X	X	X	✓
[96, 188]	$SL(2, 3) \rightarrow G \rightarrow C_2$	✓	✓	X	✓	X
[96, 189]	$C_2 \times GL(2, 3)$	✓	✓	X	✓	X
[96, 190]	$(C_2 \times SL(2, 3)) \rtimes_{\varphi} C_2$	✓	X	X	X	X
[96, 191]	$SL(2, 3) \rightarrow G \rightarrow C_2 \rtimes_{\varphi} C_2$	✓	X	X	X	X
[96, 192]	$SL(2, 3) \rightarrow G \rightarrow C_2 \rtimes_{\varphi} C_2$	✓	✓	✓	✓	X
[96, 193]	$(SL(2, 3) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	✓	X	X	X	X
[96, 194]	$C_2 \times (A_4 \rtimes_{\varphi} C_4)$	✓	X	X	X	✓
[96, 195]	$(C_2 \times C_2 \times A_4) \rtimes_{\varphi} C_2$	✓	X	X	X	✓
[96, 196]	$C_2 \times C_4 \times A_4$	✓	X	X	X	✓
[96, 197]	$D_4 \times A_4$	✓	X	X	X	✓
[96, 198]	$C_2 \times C_2 \times SL(2, 3)$	✓	X	X	X	X
[96, 199]	$Q_8 \times A_4$	✓	X	X	X	✓
[96, 200]	$C_2 \times (SL(2, 3) \rtimes_{\varphi} C_2)$	✓	✓	X	✓	X
[96, 201]	$(SL(2, 3) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_2$	✓	X	X	X	X
[96, 202]	$(C_2 \times SL(2, 3)) \rtimes_{\varphi} C_2$	✓	X	X	X	X
[96, 203]	$(C_2 \times C_2 \times Q_8) \rtimes_{\varphi} C_3$	✓	X	X	X	✓
[96, 204]	$((C_2 \times D_4) \rtimes_{\varphi} C_2) \rtimes_{\varphi} C_3$	✓	X	X	X	✓
[96, 205]	$C_2 \times C_2 \times (C_3 \rtimes_{\varphi} Q_8)$	X	X	X	X	X
[96, 206]	$C_2 \times C_2 \times C_4 \times S_3$	X	X	X	X	X
[96, 207]	$C_2 \times C_2 \times D_{12}$	X	X	X	X	X
[96, 208]	$C_2 \times ((C_{12} \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 209]	$C_2 \times D_4 \times S_3$	X	X	X	X	X

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Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[96, 210]	$C_2 \times ((C_2 \times (C_3 \rtimes_{\varphi} C_4)) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 211]	$(C_6 \times D_4) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 212]	$C_2 \times Q_8 \times S_3$	X	X	X	X	X
[96, 213]	$C_2 \times ((C_4 \times S_3) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 214]	$(C_6 \times Q_8) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 215]	$((C_4 \times C_2) \rtimes_{\varphi} C_2) \times S_3$	X	X	X	X	X
[96, 216]	$(D_4 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 217]	$(Q_8 \times S_3) \rtimes_{\varphi} C_2$	X	X	X	X	X
[96, 218]	$C_2 \times C_2 \times C_2 \times (C_3 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[96, 219]	$C_2 \times C_2 \times ((C_6 \times C_2) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 220]	$C_{12} \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[96, 221]	$C_2 \times C_6 \times D_4$	X	X	X	X	X
[96, 222]	$C_2 \times C_6 \times Q_8$	X	X	X	X	X
[96, 223]	$C_6 \times ((C_4 \times C_2) \rtimes_{\varphi} C_2)$	X	✓	X	✓	X
[96, 224]	$C_3 \times ((C_2 \times D_4) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 225]	$C_3 \times ((C_2 \times Q_8) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[96, 226]	$C_2 \times C_2 \times S_4$	✓	X	X	X	✓
[96, 227]	$((C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_3) \rtimes_{\varphi} C_2$	✓	X	X	X	✓
[96, 228]	$C_2 \times C_2 \times C_2 \times A_4$	✓	X	X	X	✓
[96, 229]	$C_2 \times ((C_2 \times C_2 \times C_2 \times C_2) \rtimes_{\varphi} C_3)$	✓	X	X	X	✓
[96, 230]	$C_2 \times C_2 \times C_2 \times C_2 \times S_3$	X	X	X	X	X
[96, 231]	$C_6 \times C_2 \times C_2 \times C_2 \times C_2$	X	---	---	---	X
[97, 1]	$C_{97}$	X	---	---	---	X
[98, 1]	$D_{49}$	X	✓	✓	✓	X
[98, 2]	$C_{98}$	X	---	---	---	X
[98, 3]	$C_7 \times D_7$	X	✓	✓	✓	X
[98, 4]	$(C_7 \times C_7) \rtimes_{\varphi} C_2$	X	X	X	X	X
[98, 5]	$C_{14} \times C_7$	X	---	---	---	X
[99, 1]	$C_{99}$	X	---	---	---	X
[99, 2]	$C_{33} \times C_3$	X	---	---	---	X

Continued on next page

Table 1 – continued from previous page

GAP ID	Group	<b>3</b>	$U_3$	$U_2$	$U_{2 \times 1}$	$A_4$
[100, 1]	$C_{25} \rtimes_{\varphi} C_4$	X	✓	✓	✓	X
[100, 2]	$C_{100}$	X	---	---	---	X
[100, 3]	$C_{25} \rtimes_{\varphi} C_4$	X	X	X	X	X
[100, 4]	$D_{50}$	X	✓	✓	✓	X
[100, 5]	$C_{50} \times C_2$	X	---	---	---	X
[100, 6]	$C_5 \times (C_5 \rtimes_{\varphi} C_4)$	X	✓	✓	✓	X
[100, 7]	$(C_5 \times C_5) \rtimes_{\varphi} C_4$	X	X	X	X	X
[100, 8]	$C_{20} \times C_5$	X	---	---	---	X
[100, 9]	$C_5 \times (C_5 \rtimes_{\varphi} C_4)$	X	X	X	X	X
[100, 10]	$(C_5 \times C_5) \rtimes_{\varphi} C_4$	X	X	X	X	X
[100, 11]	$(C_5 \times C_5) \rtimes_{\varphi} C_4$	X	X	X	X	X
[100, 12]	$(C_5 \times C_5) \rtimes_{\varphi} C_4$	X	X	X	X	X
[100, 13]	$D_5 \times D_5$	X	X	X	X	X
[100, 14]	$C_{10} \times D_5$	X	✓	✓	✓	X
[100, 15]	$C_2 \times ((C_5 \times C_5) \rtimes_{\varphi} C_2)$	X	X	X	X	X
[100, 16]	$C_{10} \times C_{10}$	X	---	---	---	X