# The smallest minimal blocking sets of $\mathrm{Q}(6, q), q$ even 

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Using results on the size of the smallest minimal blocking sets of $\mathrm{Q}(4, q), q$ even, of Eisfeld, Storme, Szőnyi and Sziklai [2], and results concerning the number of internal nuclei of $(q+2)$-sets in $\mathrm{PG}(2, q), q$ even, of Bichara and Korchmáros [1], together with projection arguments, we obtain the following characterization of the smallest minimal blocking sets of $\mathrm{Q}(6, q), q$ even and $q \geqslant 32$ :

Theorem 1 Let $\mathcal{K}$ be a minimal blocking set of $\mathrm{Q}(6, q)$, q even, $|\mathcal{K}| \leqslant q^{3}+q$, $q \geqslant 32$. Then there is a point $p \in \mathrm{Q}(6, q) \backslash \mathcal{K}$ with the following property: $T_{p}(\mathrm{Q}(6, q)) \cap \mathrm{Q}(6, q)=p \mathrm{Q}(4, q)$ and $\mathcal{K}$ consists of all the points of the lines $L$ on $p$ meeting $\mathrm{Q}(4, q)$ in an ovoid $\mathcal{O}$, minus the point $p$ itself, and $|\mathcal{K}|=q^{3}+q$.

1. A. Bichara and G. Korchmáros, Note on $(q+2)$-sets in a Galois plane of order $q$, Combinatorial and geometric structures and their applications (Trento, 1980), pages 117-121. North-Holland, Amsterdam, 1982.
2. J. Eisfeld, L. Storme, T. Szőnyi, and P. Sziklai, Covers and blocking sets of classical generalized quadrangles, Discrete Math., 238(1-3):35-51, 2001.
