Technical Information

I. Execution notes

All of our handles are compactly implemented, therefore not, as many similar products available at the market, hollow. Articles of thermosetting moulding compounds are generally deburred; such ones of thermoplastic moulding compounds are flash free due to the method. All inserted bushes and pins are form-locked and moulded. It does not consequently exist the risk that the armouring parts - also when loaded permanently - resolve themselves.

II. Used plastics, characteristics

In the case of the thermosetting articles we use the moulding compound PF 31, well known as “Bakelite”. The thermoplastic handles are made of high-quality glass reinforced polyamide 6 (nylon, PA6 GV). Subsequently we mention some characteristic values of these raw materials *:

property	norm	PF 31	PA6 GV
density	ISO 1183	1,35 g/cm^3	1,35 g/cm^3
flexural strength	ISO 178	70-100 MPa	---
tensile strength	ISO 527	---	160 N/mm^2
flexural modus	ISO 178	6-8 kN/mm^2	---
tensile modus	ISO 527	---	9 kN/mm^2
Charpy notched impact strength	ISO 179	1,5-2,0 kJ/m^2	10-13 kJ/m^2
max. application temperature	DIN 44904	120-140 °C	80-100 °C
flammability	UL 94	V0 / 3,2 mm	---
well constant against (selection)		water alcohol petrol mineral oil grease	petrol oil grease light bases some alcohols
not or not well well constant against (selection)		boiling water strong bases strong acids	mineral acids strong bases glycols

* all information is based on manufacturer’s specifications and therefore, not binding standard values are only

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III. Coloring

The coloring of our handles is black in standard; the color red (approx. RAL 3003) represents a Substandard for Ball Knobs DIN 319 (Forms C and E). As special production multiple other colors are possible, here thermoplastic articles are advantageous because these raw materials can be dyed ourselves, whereas thermosetting materials have to be purchased as colored compound.

IV. Differing executions, possibilities

In our catalogue usual executions are mentioned concerning bores, screw threads and armouring parts. In excess of these specifications various other executions are still available without special costs, which could not be listed on account of the limited position possibilities. If you should not find the required execution we ask for your purposeful inquiry. Particularly we would like to refer here to our diverse possibilities; almost any geometry of inserted armouring parts (specific ends of screw thread, crossing bores, fine-pitch threads etc.) is possible. Furthermore, bushes and bolts materials differing from standard (high-grade steel, brass etc.) and surface treatment (burnishing, nickel plating etc.) are possible of course. Also there are several possibilities of special raw materials to be used for any purpose, such as in the case of highest thermal stress to 300 °C, during special electrical requirements or in highly shockproof ranges).

V. Screw thread dimensional accuracy

The armouring parts pressed in or injected (bushes and bolts) are made of steel (at least strength class 4.8) produced and general with a layer thickness of 6 to 8 µm dovetailed. The limits of size normally correspond to the tolerance zone 6g at male threads and 6H with internal screw-threads (teaching test). At male threads in excess widths (> 40 mm) or such ones in M4 resp. M16 and larger, it can come for tolerance zone displacement in exceptions after 6h. Concerning plastic threading (without bush) these allowances as a rule cannot be kept for manufacturing reasons, the test occurs by means of standard screws.

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VI. General allowances

Our manufacturing and inspection of the control elements may fit if not different specified, the general tolerances in accordance with DIN 16742 (plastic) and DIN 7168m (armouring part) as a basis. For measures without function tolerances might not be kept. Bolts those decree more than one screw thread exhaust passage after DIN 76 are case-hardened differingly from this in the case of articles with male threads (as a rule 2 to 3 mm of screw thread exhaust passage). The protruding length of the threaded bolts it is for manufacturing reasons tolerated +/- 0.5 mm (at protruding length to 50 mm) and +/- 0.7 (at protruding length over 50 mm).