How to choose the right hash function?

I need a hash function for a new project

Purpose?

- Finding diffs → Rabin / adler32 (rsync) (rolling hashes)
- Something with Cryptography → **For Signatures?**
  - Yep! → Poly1305 / HMAC+SHA3 / BLAKE3
  - No → **For Password Hashing?**
    - Yep! → argon2 / scrypt
    - No → **Fast & configurable?**
      - Yep! → BLAKE3
      - I'll rather use the standard, thanks. → SHA3
- Checksums! → **Output bits?**
  - ≤ 128 → **How simple?**
    - Let me write it myself → CRC32 / FNV1a / *djb2*
    - Don't care, I don't have to implement it myself → Murmur3 / xxHash / MeowHash
  - > 128 → **How bad are collisions?**
    - Please no! → SHA3
    - → **Need for speed?**
      - Fastest possible! → Read about "(minimal) perfect hashing" and bring some time
      - I need it fast on old / small hardware too → SHA3
      - Should be fast, but an existing algorithm will do fine → BLAKE3