

G EQDSK FORMAT

1. Format

The detailed format for G EQDSK can be found in the Fortran source code /c/efit/u/weqdsku.f on GA Unix HP workstation hydra. Briefly, a right-handed cylindrical coordinate system (R, ϕ , Z) is used. The G EQDSK provides information on the pressure, poloidal current function, q profile on a uniform flux grid from the magnetic axis to the plasma boundary and the poloidal flux function on the rectangular computation grid. Information on the plasma boundary and the surrounding limiter contour is also provided.

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      character*10 case(6)
      dimension psirz(nw,nh),fpol(1),pres(1),ffprim(1),
      .          pprime(1),qpsi(1),rbbbs(1),zbbbs(1),
      .          rlim(1),zlim(1)
C
      read (neqdsk,2000) (case(i),i=1,6),idum,nw,nh
      read (neqdsk,2020) rdim,zdim,rcentr,rleft,zmid
      read (neqdsk,2020) rmaxis,zmaxis,simag,sibry,bcentr
      read (neqdsk,2020) current,simag,xdum,rmaxis,xdum
      read (neqdsk,2020) zmaxis,xdum,sibry,xdum,xdum
      read (neqdsk,2020) (fpol(i),i=1,nw)
      read (neqdsk,2020) (pres(i),i=1,nw)
      read (neqdsk,2020) (ffprim(i),i=1,nw)
      read (neqdsk,2020) (pprime(i),i=1,nw)
      read (neqdsk,2020) ((psirz(i,j),i=1,nw),j=1,nh)
      read (neqdsk,2020) (qpsi(i),i=1,nw)
      read (neqdsk,2022) nbbbs,limitr
      read (neqdsk,2020) (rbbbs(i),zbbbs(i),i=1,nbbbs)
      read (neqdsk,2020) (rlim(i),zlim(i),i=1,limitr)
C
      2000 format (6a8,3i4)
      2020 format (5e16.9)
      2022 format (2i5)

```

2. Variables

CASE: Identification character string

NW: Number of horizontal R grid points

NH: Number of vertical Z grid points

RDIM: Horizontal dimension in meter of computational box

ZDIM: Vertical dimension in meter of computational box

RLEFT: Minimum R in meter of rectangular computational box

ZMID: Z of center of computational box in meter

RMAXIS: R of magnetic axis in meter

ZMAXIS:	Z of magnetic axis in meter
SIMAG:	poloidal flux at magnetic axis in Weber /rad
SIBRY:	poloidal flux at the plasma boundary in Weber /rad
RCENTR:	R in meter of vacuum toroidal magnetic field BCENTR
BCENTR:	Vacuum toroidal magnetic field in Tesla at RCENTR
CURRENT:	Plasma current in Ampere
FPOL:	Poloidal current function in m-T, $F = RB_T$ on flux grid
PRES:	Plasma pressure in nt / m ² on uniform flux grid
FFPRIM:	$FF'(y)$ in (mT) ² / (Weber /rad) on uniform flux grid
PPRIME:	$P'(y)$ in (nt /m ²) / (Weber /rad) on uniform flux grid
PSIZR:	Poloidal flux in Weber / rad on the rectangular grid points
QPSI:	q values on uniform flux grid from axis to boundary
NBBBS:	Number of boundary points
LIMITR:	Number of limiter points
RBBBS:	R of boundary points in meter
ZBBBS:	Z of boundary points in meter
RLIM:	R of surrounding limiter contour in meter
ZLIM:	Z of surrounding limiter contour in meter

3. Toroidal Current Density

The toroidal current J_T related to $P'(y)$ and $FF'(y)$ through

$$J_T \text{ (Amp/m}^2\text{)} = R P'(y) + FF'(y) / R/\mu_0$$