MarCAD

Engineering Design Ltd

DRAWING & DOCUMENT PROCEDURES

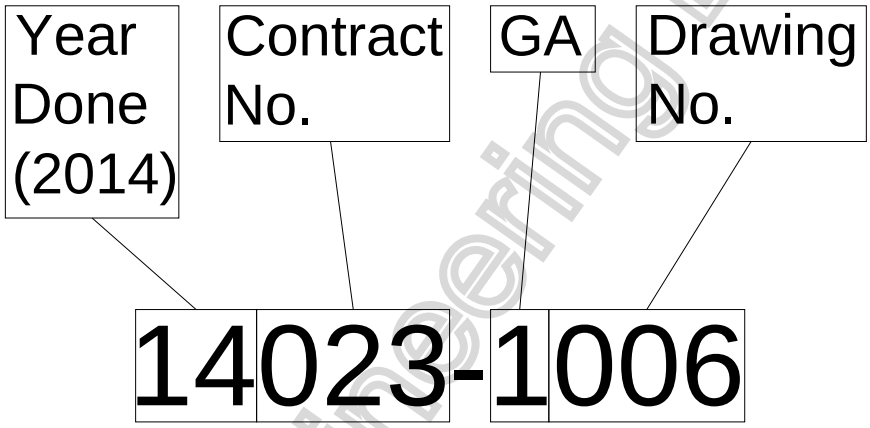
DOCUMENT NUMBER: 09000-6003 Issue B

MarCAD Engineering Design Ltd
30 Mount View Road, Sheffield, S8 8PH
www.MarcadEngineering.co.uk
info@MarcadEngineering.co.uk
Tel: +44 (0)114 400 7986

1. **Keep Job File Up To Date**

2. **Fill In Drawing / Document Register**

3. **Document No.**
   00 = Survey
   01 = GA / Assembly / Sub-Assembly
   02 = Detail
   03 = Diagram
   04 = Sketch (Does Not Require Border)
   05 = BOM / Plant List / Cutting List / Data Sheets / Tech Docs (Calc's.)
   06 = General Documents (Letters)
   07 = Quotation



Print & Check Document / Drawing (Get at least 1 other person to check drawing / document as well as yourself).

4. Issuing Drawings / Documents

Issue Out As .PDF Files Only (unless instructed otherwise by MarCAD Management).

Always Update Register, & Send a Transmittal for all documents.
(Refer To Section 2 part d)

Issue Via Email (Or Post)

Section 1 - Job File

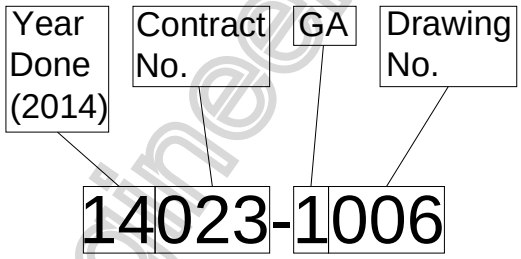
a. File in the correct sections with any information you receive.
b. Items to be stored in date order in the correct appendix section.
c. File should only contain latest information – Not old revs as well.

Section 2 – Document / Drawing Register

a. To Take Out Document No. (Or if revising a drawing check to see if it needs Rev updating).

b. Use the following drawing Number Code:

- Document / Drawing Type
  - 00 = Survey
  - 01 = GA / Assembly / Sub-Assembly
  - 02 = Detail
  - 03 = Diagram
  - 04 = Sketch (Does Not Require Border)
  - 05 = BOM / Plant List / Cutting List / Data Sheets / Tech Docs
  - 06 = Document
  - 07 = Quotation
- Year
- Contract
- Number



c. Revisions: Documents start at issue ‘A’ then go to ‘B’, ‘C’ ‘D’, etc.
Drawings start with no Revision then go ‘A’, ‘B’, ‘C’ etc.
Note: Document / Drawing Status **can** be changed without revising the Document / Drawing if **NO** other changes are made to the document.

d. If Applicable – Move old revs into old revs file, Do Not overwrite/Update an old rev that has been issued.

e. When issuing drawings always update Drawing / Document register.

Section 3 - Drawing Standards

a. Start New Drawing Using MarCAD template (correct properties-layers etc inherited). **DO Not** copy one used on another drawing.

b. **Save as new Drawing Number**

c. **Edit Title Block & Rev Block.** (Refer to section 2 on document numbers, revisions and status).
Note: Use one of MarCAD's standard status stamps / descriptions, do not create your own.

d. **Use Paper Space – Draw In Model Space, Dimension & Note In Paper Space** Note: use polygonal viewport creator or convert object to viewport. **DO NOT** use single viewport, as this will hinder manipulation of viewports.

e. **Use correct layers.** When creating new job specific layers, use MarCAD standard line thicknesses *(refer to MarCAD Standard Layers Document)*

f. **Lines to be continuous** (not broken into several lines etc) **and no lines on top of lines!**

g. **Dimensions**: -
- Dimension to be done in Paper Space.
- Use Dimension Style Standard & rename to the scale of your viewport. i.e. 1 : 10 or 1 : 100
- To be auto generated (**NOT TYPED IN**).
- To the point dimensioned on drawing.
- Scaled up views to have a different text colour
- DO NOT use dimension override to produce scaled up views.

h. Text
- Notes to be done in Paper Space
- Height = 3x Drawing Scale
- To be **Multi-line Text** (not single line)
- **DO NOT** press enter to go onto next line – use grips to position)
- To be left justified.

i. Use MarCAD Technical Library For Standard Symbols including:
   - Section text
   - Item Numbers
   - Drawing Labels
   - Etc

j. Use correct layers.

k. **Set L.T.S.** (Line Type Scale) in model space (Rule Of Thumb: LTS = 0.5x Drawing Scale), paper space viewports will automatically adjust to suit their scale

l. **Paper Space –** Scale, Lock Viewports, Etc

m. **D**elete Paper-space Tabs Not In Use and rename the one(s) used (Rename Using Drawing Number).

n. **Purge.**

o. **Save** (**After A 'ZOOM ALL'**) to leave whole drawing showing in model space.

p. **Print & Check** Drawing (Minimum **1 other person to check** drawing as well as yourself).

SAVE DOCUMENTS REGULARLY
Throughout Development

Ensure All Drawings / Documents Are Well Presented

Section 4 - Issuing Drawings / Documents

a. **Issue Out As .PDF** Files Only (unless instructed otherwise by MarCAD Management).

b. **Update Drawing Register** *(Refer to section 2 part d)*

c. **Create Transmittal**
- Save Template As Next Number (Never Overwrite a previous issue).
- Fill in MarCAD Standard Transmittal Sheet.
- Clearly fill in all information fields required (Issued for Manufacture Etc).
- Save as Excel and PDF.

d. **Issue Via Email** (or post).
- Ensure all documents are attached.
- Ensure all personnel concerned are copied in.
- Layout Out email in the following format:
  i. Address Person Concerned.
  ii. State what is attached.
  iii. State reasons for email – (Drawings For Manufacture etc)
  iv. State any other relevant information.

Signed

M Griffin

Mark Griffin
Director

APPENDIX A

Information needed to conform to British Standards

Orientation Marks

Trimming marks
Grid referenced border
Orientation mark

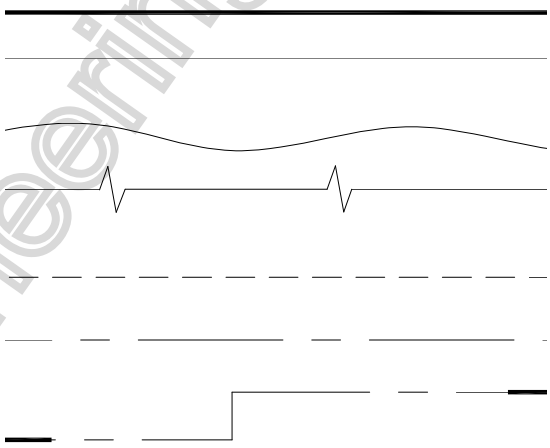
Lines

Continuous thick (outlines)
Continuous thin (other lines)

Continuous thin (partial views)
Continuous thin with zig-zags

Dashed thin (hidden)
Chain thin (centre)

Chain thin (centre) thick at ends
(cutting planes)



Title Blocks

Name:
Date:
Projection symbol:
Original scale:
Drawing title:
Drawing number:

Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
Designed by DESIGNED_BY		Checked by CHECKED_BY	Approved by - date APPROVED_BY_DATE	File name FILENAME	Date DATE	Scale SCALE
OWNER			TITLE			
			DRAWING_NUMBER		Edition EDITION	Sheet SHEET

Lettering

Use UPPER CASE and keep a consistent style and height throughout

Scales

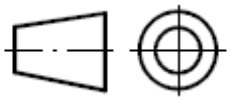
Recommended scales are	1:1	1:2	1:5	1:10	1:20	1:50	1:100
		2:1	5:1	10:1	20:1	50:1	100:1

Scale bars should be at least 100mm long and be graduated every 10mm and have a maximum width of 5mm

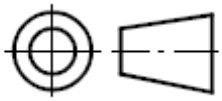
Projections

Orthographic

First angle projections



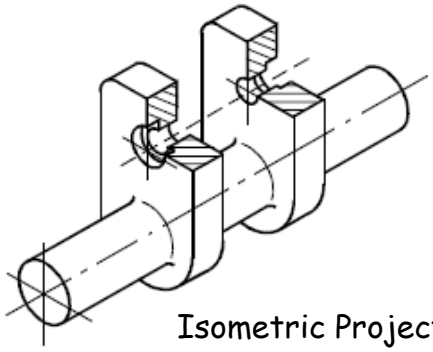
Third angle projections



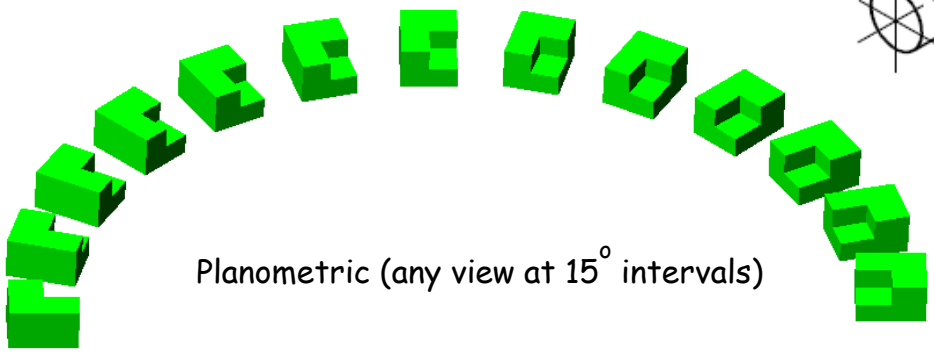
Axonometric

Oblique

Isometric



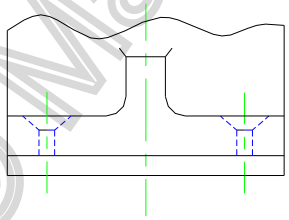
Isometric Projection



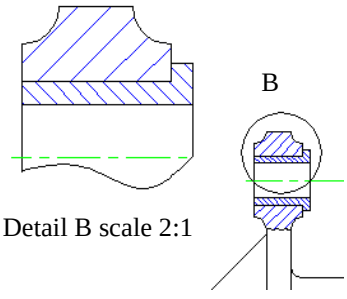
Planometric (any view at 15° intervals)

Views

Partial / Auxiliary views



Enlarged views



Detail B scale 2:1

Section views

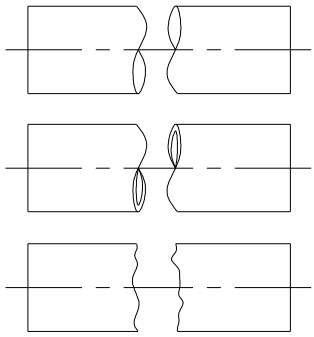
Items such as shafts, ribs, webs, spokes, nuts and bolts are NOT normally sectioned

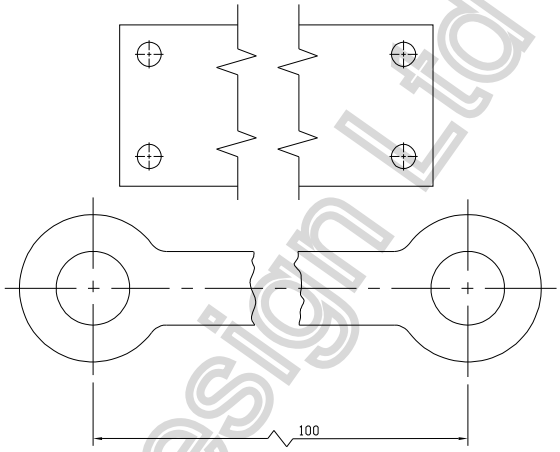
Interrupted views

Solid shaft

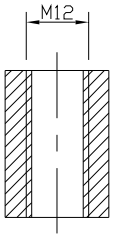
Hollow shaft

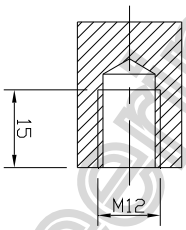
General break lines



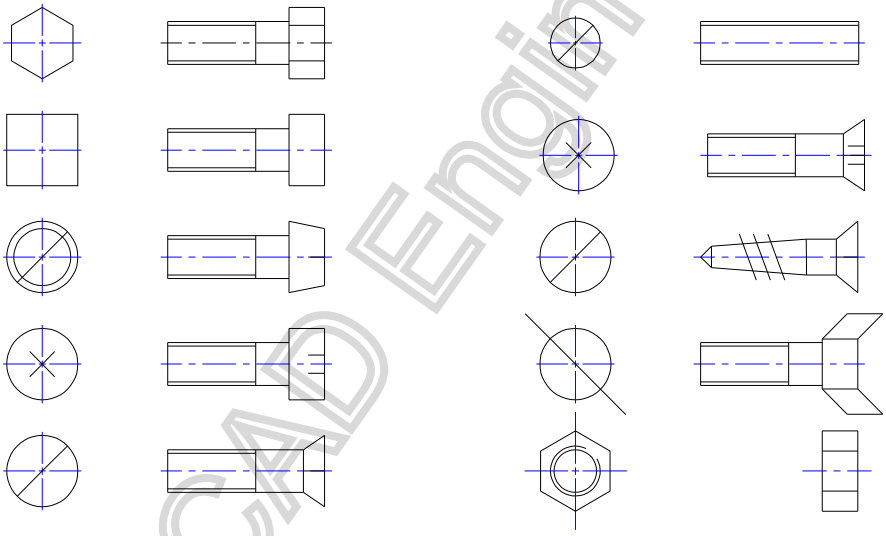


Holes and Threaded holes

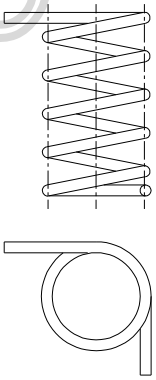




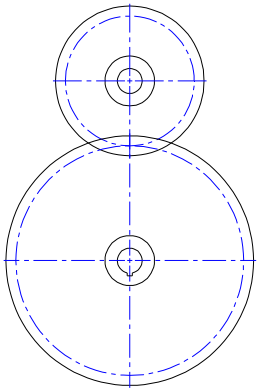
Screws and nuts



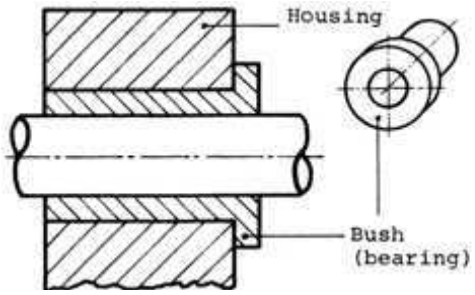
Springs



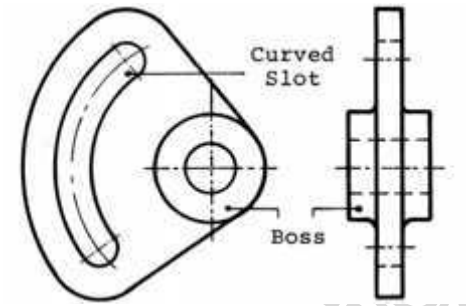
Gears



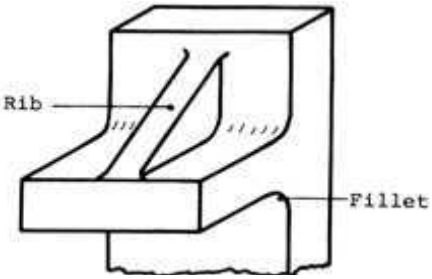
Bush and Housing



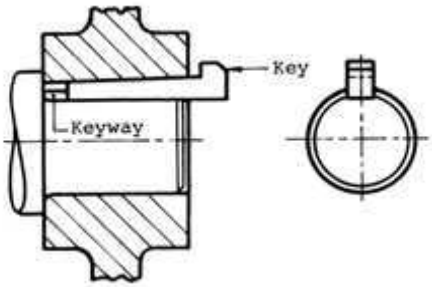
Slots and Bosses



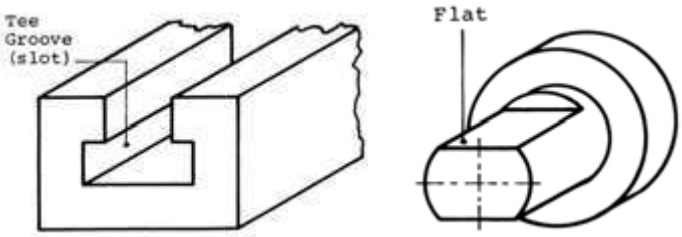
Ribs and Fillets



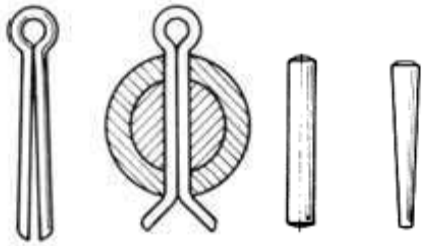
Key and Keyway



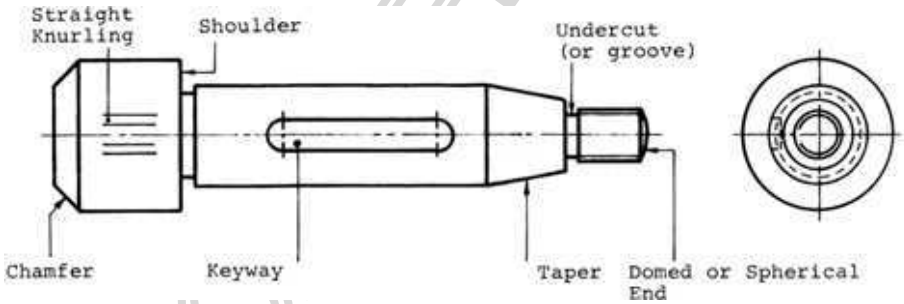
Tee Grooves and Flats



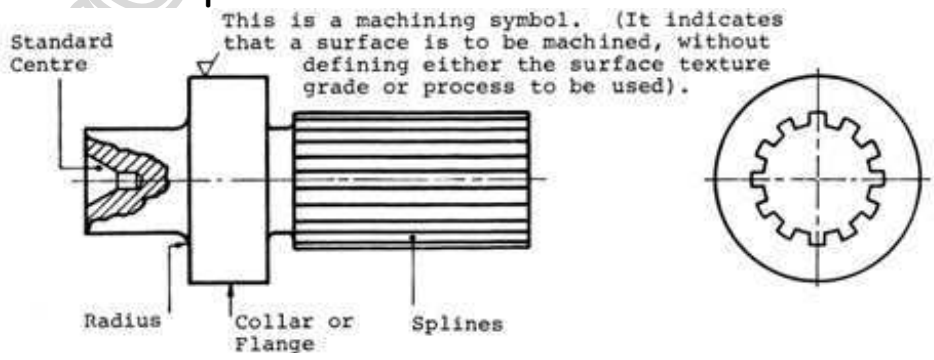
Cotter Pins, Dowels and taper pins



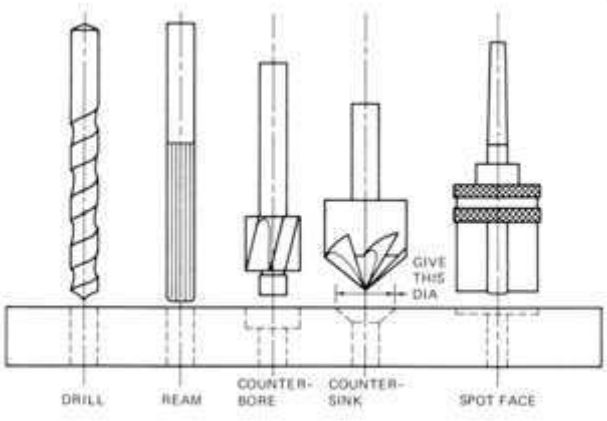
Knurling, chamfers, tapers and undercuts



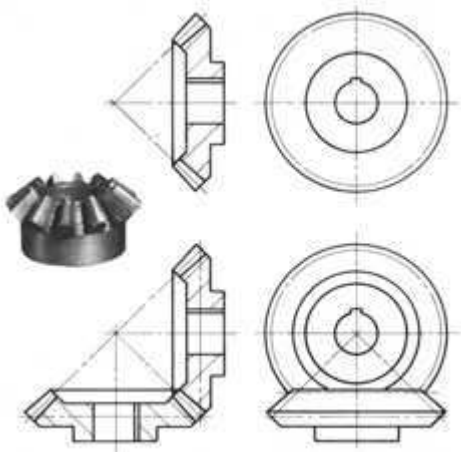
Collars and Splines



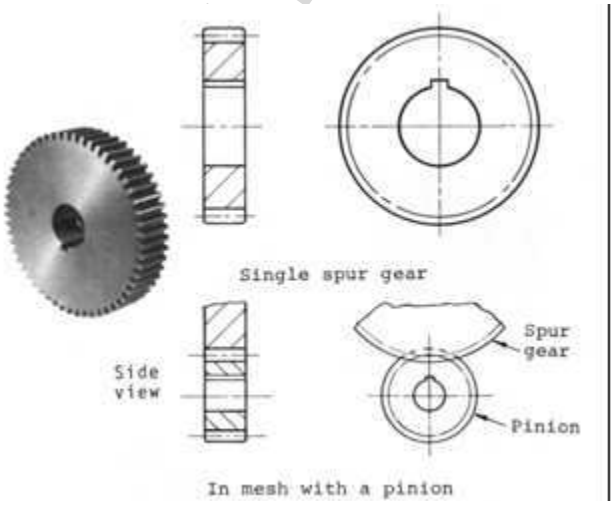
Types of holes



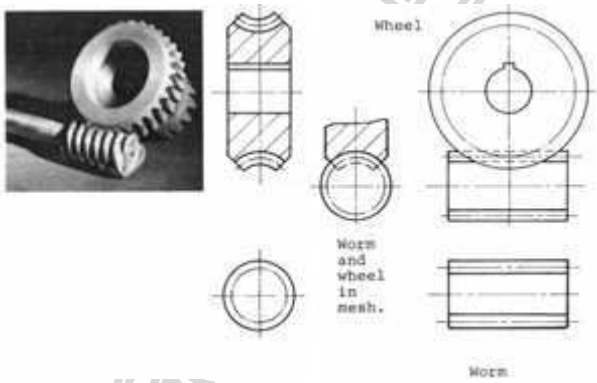
Bevel Gears



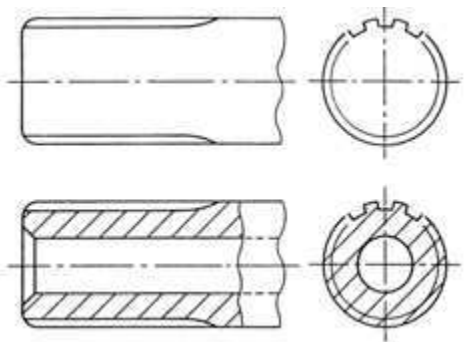
Spur Gears



Worm and Wheel



Splines



Acceptable Abbreviations:

A/C	Across corners
A/F	Across flats
HEX HD	Hexagon head
ASSY	Assembly
CRS	Centres
CL	Centre line
CHAM	Chamfer
CH HD	Cheese head
CSK	Countersunk
CBORE	Counterbore
CYL	Cylinder or cylindrical
DIA	Diameter (in a note)
Ø	Diameter (preceding a dimension)
R	Radius (preceding a dimension, capital only)
RAD	Radius (in a note)
DRG	Drawing
FIG.	Figure
LH	Left hand
LG	Long
MATL	Material
NO.	Number
PATT NO.	Pattern number
PCD	Pitch circle diameter
I/D	Inside diameter
O/D	Outside diameter
RH	Right hand
RD HD	Round head
SCR	Screwed
SPEC	Specification
SPHERE	Spherical
SFACE	Spotface
SQ	Square (in a note)
TYP	Typical or typically
THK	Thick
STD	Standard
UCUT	Undercut
M/CD	Machined
mm	Millimeter
NTS	Not to scale
RPM	Revolutions per minute
SWG	Standard wire gauge
TPI	Teeth per inch