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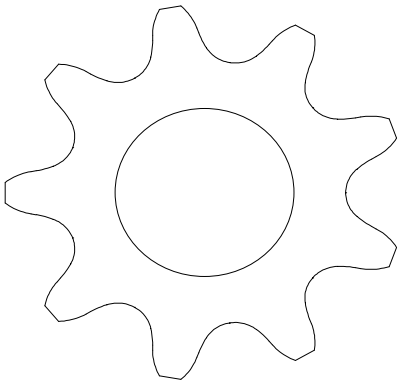
Ref: 9900-1-M3FS1

FastSHAPES® - SPROCKET 32Bit

TYPICAL APPLICATIONS

Roller Chain Power Transmission generally.
Drag Chain Conveyor drives
Bucket Elevator drives

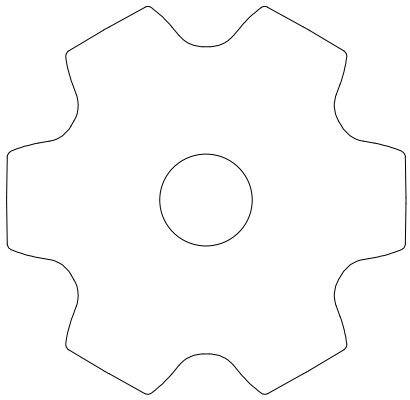


TECHNICAL DESCRIPTION

Roller chain sprockets are set out in compliance with the following standards
ANSI B29.1 Types I & II
ANSI B29.15 Style 1
Other international standards can be included at user request

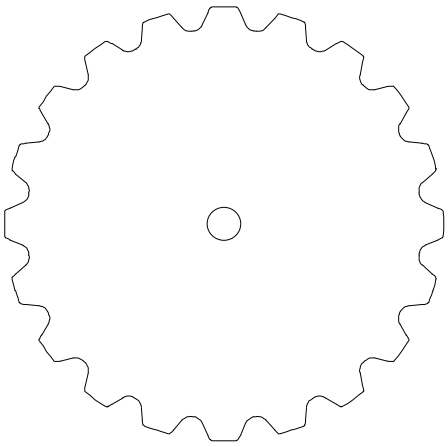
DATA REQUIREMENTS

Material (optional)
Thickness (optional)
Chain Roller Diameter
Chain Pitch
Number of Teeth
Tooth Height
Bore Diameter (optional)
Spoke Holes (optional)



OUTPUT

A pattern for marking and/or cutting the sprocket, in any of the following forms ...
FastCAM file
2D DXF file
NC Program
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS1 : SPROCKET

OTHER REFERENCES

M3FS16 : SPROCKET PLUS (User-specified sprocket designs)

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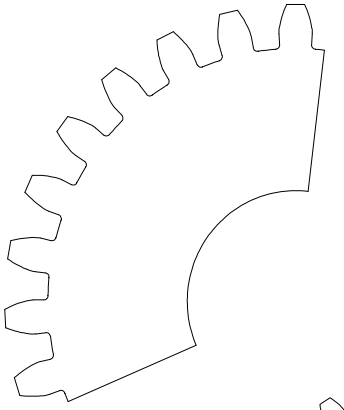
Ref: 9900-1-M3FS2

FastSHAPES® - RandP 32Bit

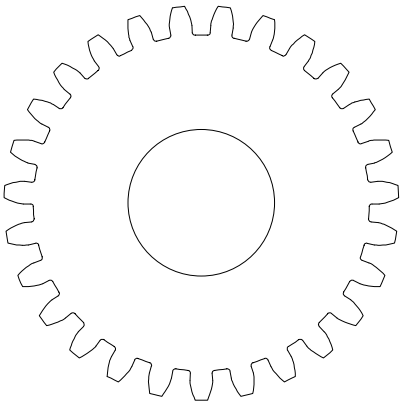
TYPICAL APPLICATIONS

Spur Geared Power Transmission
Linear (Rack and Pinion) drives (e.g. conveyor shuttles)



TECHNICAL DESCRIPTION

Involute Spur Rack and Pinion.
Comply with AS 2938, covering ...
14.5 degree full teeth
20 degree full teeth
20 degree stub teeth
A pinion sector is optional.

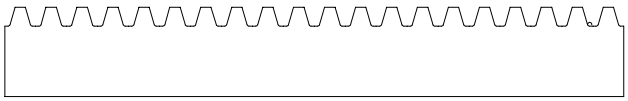


DATA REQUIREMENTS

Select pressure angle, tooth height
Pitch Circle Diameter
Number of Teeth in a complete gear
Number of Teeth in gear sector (optional)
Bore Diameter (optional)
Number of Teeth in Rack (optional)
Rack Depth (optional)
Material & thickness

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file
NC Program
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS3 : RandP

OTHER REFERENCES

M3FS4 : INVINT (Internal Involute gears)

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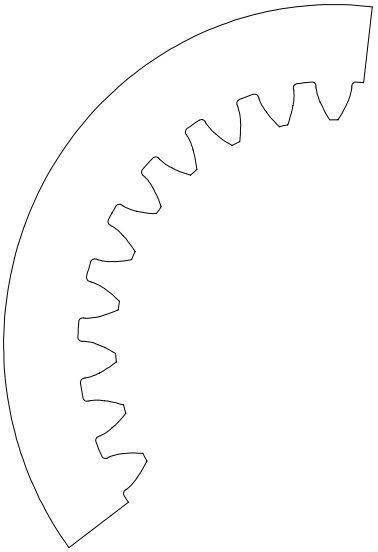
FastSHAPES® - INVINT 32Bit

TYPICAL APPLICATIONS

Spur Geared Power Transmission
Tilting Equipment Drives (e.g. Ladles)
(Often used as `rack' with pinion from 3. RandP)



TECHNICAL DESCRIPTION

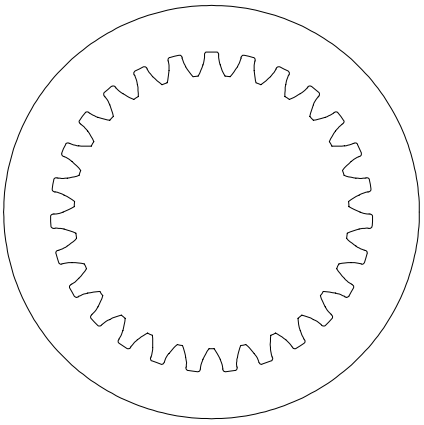
Involute Spur Internal Gear.
Complies with AS 2938, covering ...
14.5 degree full teeth
20 degree full teeth
20 degree stub teeth
A gear sector is optional.

DATA REQUIREMENTS

Select pressure angle, tooth height
Pitch Circle Diameter
Number of Teeth in a complete gear
Number of Teeth in a gear sector (optional)
Outer Diameter
Material & thickness

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file
NC Program
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS4 : Invint

OTHER REFERENCES

M3FS3 : RandP (Rack and Pinion).

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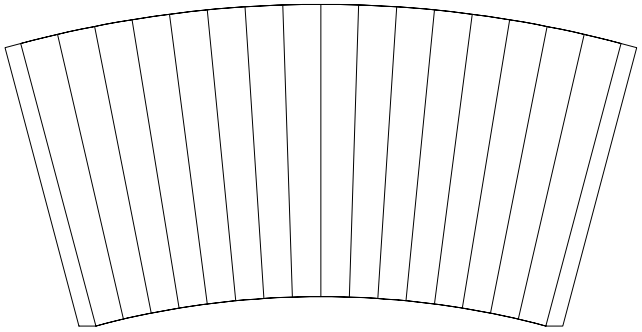
Ref: 9900-1-M3FS5

FastSHAPES® - CONE 32Bit

TYPICAL APPLICATIONS

Bulk Material storage bin hoppers
Tank Roofs
Flagpoles
Flanges, flange segments, discs
Any right circular conical structure with multiple strakes of varying thickness

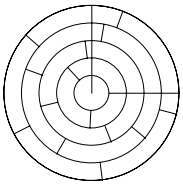


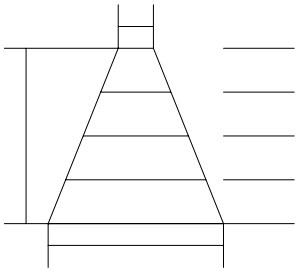
TECHNICAL DESCRIPTION

The radial line development method is used, applied to right circular conical frustums.
Covers all `cones' from flat disc to cylinder.
Multiple strakes, multiple thickness'
Alternative specifications for joint locations.

DATA REQUIREMENTS

Cone Top and Bottom Diameters & Height
Define whether diameters are internal, external or mean
Number of Strakes
Specify Green (optional)
Material
Table of thickness'





OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table
Costing Data, including Mass & Length of Cut

PROGRAM REFERENCE

M3FS5 : Cone

OTHER REFERENCES

M3FS9 : OBCONE (Oblique cone development)
M3FS15 : CBRANCH (Conical branch structure development)

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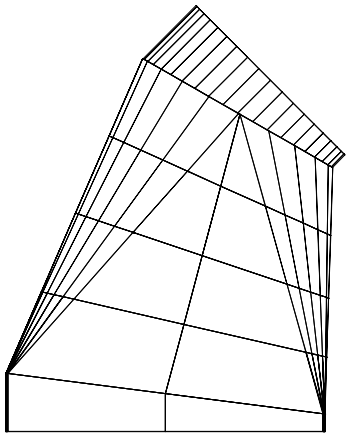
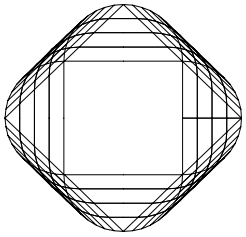
Ref: 9900-1-M3FS7

FastSHAPES® - RECTIRCLE 32Bit

TYPICAL APPLICATIONS

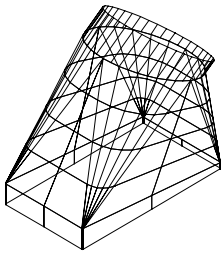
Bulk Materials Handling - hoppers and chutes.
Fluids Conveying - ducts, transitions,
- transformers, hoods, shrouds.
`Industrial strength' structures - thick plate.

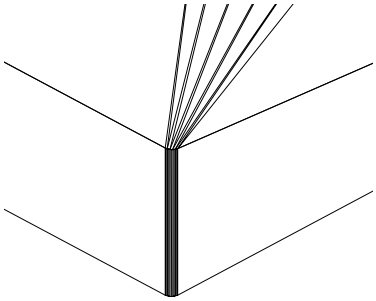




TECHNICAL DESCRIPTION

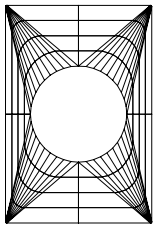
Uses triangulation development method, two setout types .
Covers finite thickness 3D plate structures.
Stucture connects between user-located shapes.
Shapes are `rectircles', i.e. round cornered rectangles.
Rectircle describes circle, rectangle, obround, etc.
Elliptical cross-sections also provided for, and ...
A `half-shape' may be defined at one end.
Optional automatic mitreing at ends, for improved flow.
Optional prismatic collars, mandatory when with mitres.
Automatic compensation for tightly pressed thick plate.

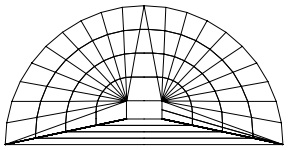




DATA REQUIREMENTS

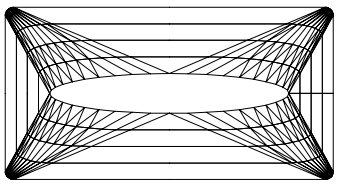
Inlet and outlet cross-sectional shape parameters.
Position and direction of outlet relative to inlet.
Collar lengths and mitreing options.
Material & Plate thickness.
Longitudinal joint locations (up to 8 joints)
Number of strakes in main body (up to 10 strakes)
Green, and provision for longitudinal seam offsets.





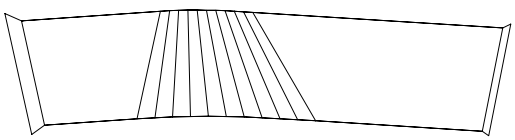
OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS7 : RECTIRCLE



OTHER REFERENCES

M3FS11 : BEND (Multi-gore rectircular bends)

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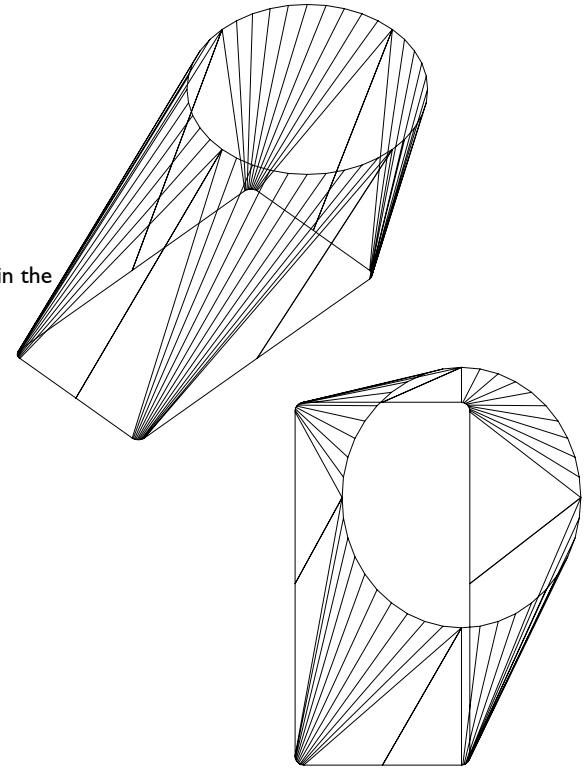
FastSHAPES® - RORT 32Bit



TYPICAL APPLICATIONS

Anywhere a Rectangle - Offset Round Transformer (Square to Round) is needed, especially with thick plate.
Ducts, flues, shrouds etc..

TECHNICAL DESCRIPTION

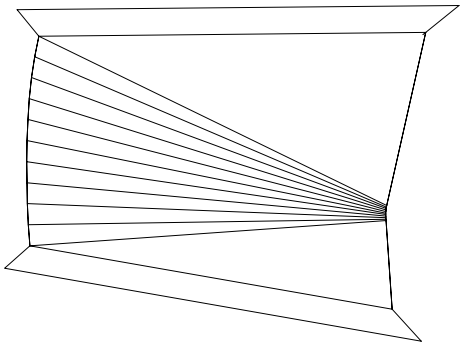
Uses triangulation development method
Finite thickness of plate is provided for - uses a radiused corner in the rectangle.
Up to 8 longitudinal seams permitted.
Parallel inlet and outlet planes
Axial offsets permitted

DATA REQUIREMENTS

Dimensions of base rectangle and corner radius
Diameter of round end
Material, Plate thickness, Height of structure
Lateral offsets of round relative to rectangular base.
Longitudinal seam locations, Collars
Green, applied to longitudinal seam edges for pressing.
Number of strakes in body (up to 10)

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Costing Data, including Mass & Length of Cut
Coordinate Table



PROGRAM REFERENCE

M3FS8 : RORT

OTHER REFERENCES

M3FS7 : RECTIRCLE (for more complex transformers)
M3FS11 : BEND (multigore bends, rectircle to round, among others)

COMMON NAME

SQUARE TO ROUND

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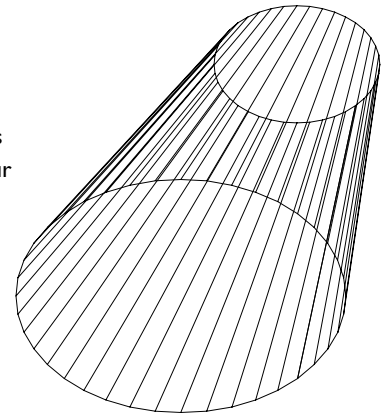
Ref: 9900-1-M3FS9

FastSHAPES® - OBCONE 32Bit

TYPICAL APPLICATIONS

Oblique cones are more commonly found as parts of more complex structures, e.g. in rectangular to round transformers, and similar structures. They may comprise the corner elements of more complex chutework, and especially as liners. Also occur as pipe or circular duct transition elements.

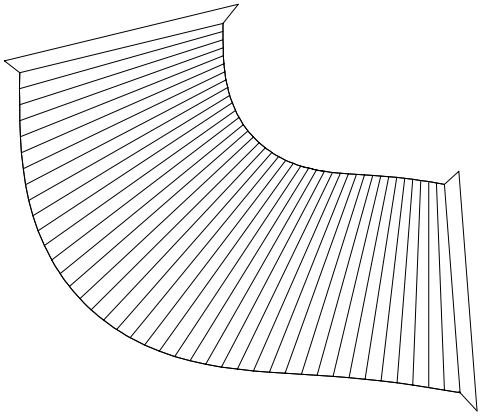


TECHNICAL DESCRIPTION

Uses triangulation development.
Up to 8 longitudinal seams permitted.
Parallel inlet and outlet planes
Axial offsets permitted.

DATA REQUIREMENTS

Diameters at top and bottom
Height
Material, Plate thickness
Lateral offsets of top relative to bottom
Longitudinal seam locations
Green, applied to longitudinal seam edges for pressing.
Number of Strakes in body



OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table

PROGRAM REFERENCE

M3FS9 : OBCONE

OTHER REFERENCES

M3FS5 : CONE (Right circular cones)
M3FS15 : CBRANCH (Conical branched structures)

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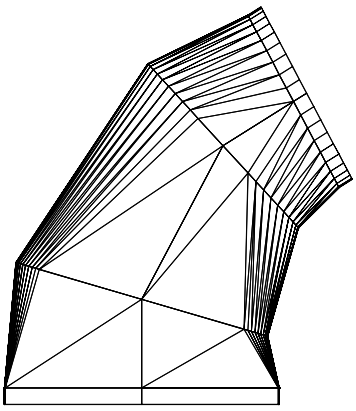
Ref: 9900-1-M3FS11

FastSHAPES® - BEND 32Bit

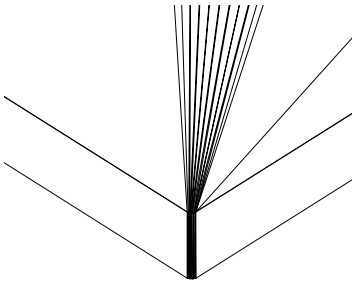
TYPICAL APPLICATIONS

Bulk Materials Handling - chutes
Mine Ventilation/Access
Fluids Conveying - transitions and transformers.
`Industrial strength' structures, thick plate.



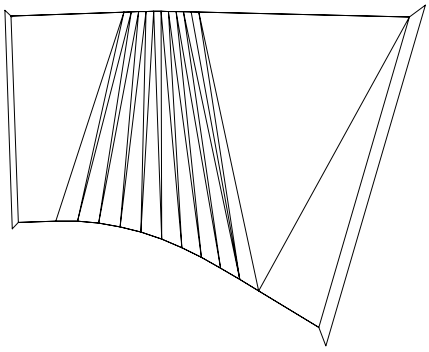
TECHNICAL DESCRIPTION

BEND provides a multi-gored bend between two ducts.
Ducts may have different shaped cross-sections.
Shapes are `rectircles', i.e. round cornered rectangles.
Rectircle describes rectangular, circular, & obround shapes.
From 2 to 10 gores permitted.
Bend angle from 1 degree to 180 degrees.
Collars optional, integral when possible (prismatic bend)
Gores Standard (Half Angle Ends) & Eschenburg (Equal Angle Gores) Setouts
Bend radius on inside, outside or centreline of bend.
Up to 8 longitudinal seams per gore.
Uses Triangulation development method as standard.
Also `AutoNest' & radial line development when possible.



DATA REQUIREMENTS

Inlet and Outlet shape dimensions
Material, Plate thickness
Bend Angle
Bend Radius and location (inside/outside/centreline)
Number of Gores
Gore Sizing - Automatic/Equal Angle/Half Angle Ends
Collar lengths (optional)
Longitudinal Seam Locations
Green, and seam offset dimensions.
`AutoNest' seam location data (optional)



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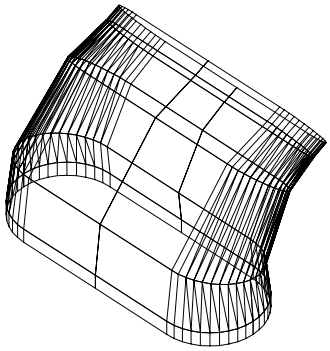
FastSHAPES® - BEND

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

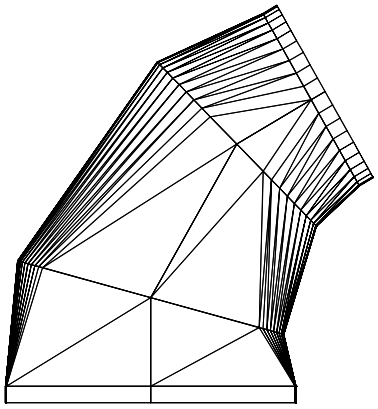
M3FS11 : BEND

OTHER REFERENCES

M3FS7 : RECTIRCLE (Rectircular transitions and transformers)
M3FS12 : ELBOW (Reducing circular cross-section bends)
M3FS13 : LOBSTER (Reducing circular cross-section bends)
M3FS21 : PENSTOCK (General right-circular-conical bends)

COMMON NAME

SQUARE TO ROUND BEND



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Ref: 9900-1-M3FS12

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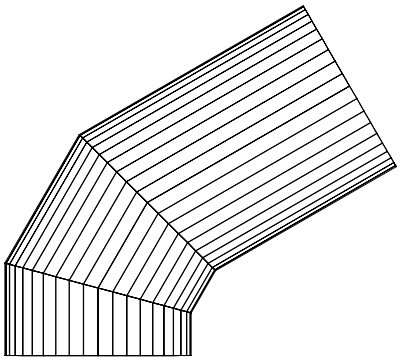
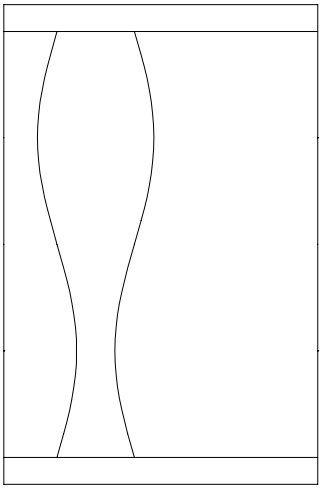
TYPICAL APPLICATIONS

Bulk Materials Handling - chutes
Fluids Conveying - transitioning bends, vents.



TECHNICAL DESCRIPTION

ELBOW provides a multi-gored bend between two ducts.
Ducts have circular cross-sectional shape.
Duct size remains constant between inlet and outlet.
From 2 to 10 gores permitted.
Bend angle from 1 degree to 180 degrees.
Collars optional, integral when possible (prismatic bend)
Bend radius on inside, outside or centreline of bend.
Up to 8 longitudinal seams per gore.
Uses Triangulation development method as standard.
Also `AutoNest' & radial line development when possible.

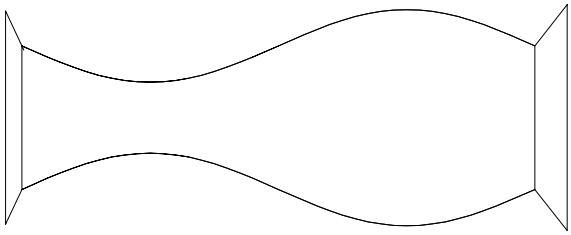


DATA REQUIREMENTS

Diameter, Material, Plate thickness, Bend Angle
Bend Radius and location (inside/outside/centreline)
Number of Gores, Collar lengths (optional)
Longitudinal Seam Locations
Green, and seam offset dimensions.
` AutoNest' seam location data (optional)

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program, Coordinate Table
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS12 : ELBOW

OTHER REFERENCES

M3FS9 : OBCONE (Oblique Cone = Circular Transitions)
M3FS11 : BEND (Rectircular cross-section bends)
M3FS13 : LOBSTER (Reducing circular cross-section bends)
M3FS21 : PENSTOCK (General right-circular-conical bends)

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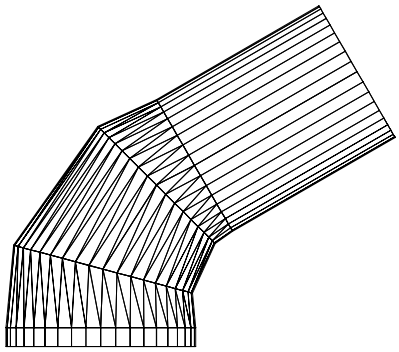
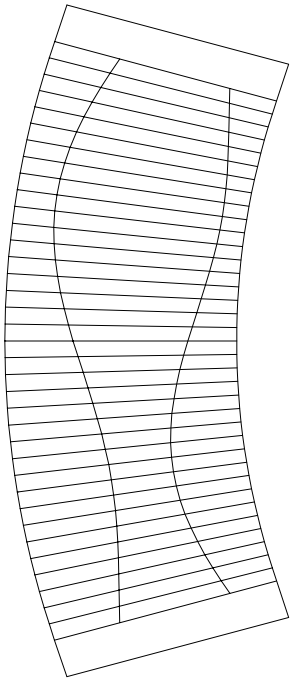


TYPICAL APPLICATIONS

Bulk Materials Handling - chutes
Fluids Conveying - gored (lobsterback) pipe bends, vents.

TECHNICAL DESCRIPTION

LOBSTER provides a multi-gored bend between two ducts.
Ducts have circular cross-sectional shape.
Duct size may vary between inlet and outlet.
From 2 to 10 gores permitted.
Bend angle from 1 degree to 180 degrees.
Collars optional, integral when specified
Bend radius on inside, outside or centreline of bend.
Up to 8 longitudinal seams per gore.
Uses Triangulation development method as standard.
Also `AutoNest' & radial line development.



DATA REQUIREMENTS

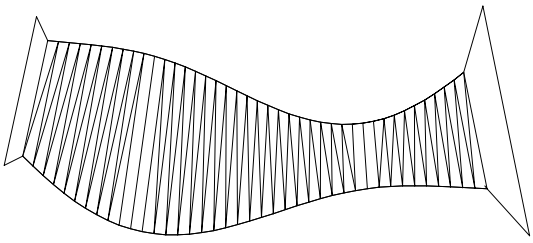
Inlet and Outlet diameters, Material, Plate thickness, Bend Angle
Bend Radius and location (inside/outside/centreline)
Number of Gores, Collar lengths (optional)
Longitudinal Seam Locations
Green, and seam offset dimensions.
`AutoNest' seam location data (optional)

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program, Coordinate Table
Costing Data, including Mass & Length of Cut

PROGRAM REFERENCE

M3FS13 : LOBSTER



OTHER REFERENCES

M3FS9 : OBCONE (Oblique Cone = Circular Transitions)
M3FS11 : BEND (Rectircular cross-section bends)
M3FS12 : ELBOW (Constant circular cross-section bends)
M3FS21 : PENSTOCK (General right-circular-conical bends)

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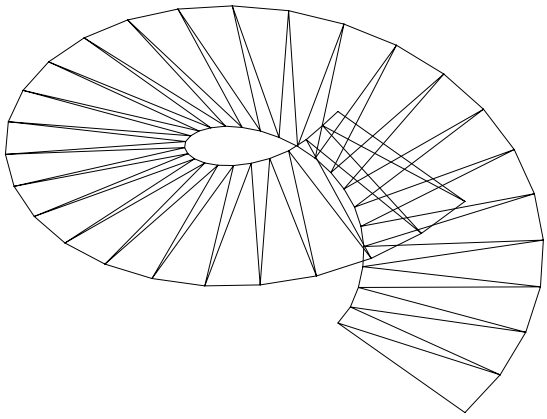

TYPICAL APPLICATIONS

In marine architecture, chined hulls
In general architecture, sculptures and art forms
In bulk materials handling, chutes, bins, hoppers
In fluids conveying, ducts, transitions, transformers
In structural fabrication, webs or flanges of curved and/or cambered trapezoidal plate box girders.
Generally, wherever the edges of a singly curved (ruled) surface or set of surfaces are defined.
(SURFACE does *not* handle doubly curved surfaces)

TECHNICAL DESCRIPTION

SURFACE uses the triangulation method to develop surfaces defined by two curves in general 3 dimensional space. A series of up to twenty adjacent surfaces with common curves between them may be developed. Each curve may be open or closed. In marine architecture, these curves are known as `chines'. More generally, they are circumferential or transverse seams or edges.

It is assumed that the curves represent the mid-thickness of the plates, hence plate thickness does not specifically enter into the development of the surfaces.

Point coordinates along each curve, as provided by the user, may be accepted as given. Alternatively, the curves may be regenerated by splining through the given points, or by forcing use of circular space arcs. When splining is specified, an untensioned cubic spline is used. This may be cyclic, anti-cyclic, free-ended, or clamped (ends set to specified directions)

Further, when splining is used, the user may opt to retain all specified points and break the curves into a specified number of intervals between given points, or may elect to forego all given points, and break each curve into the same specified number of total intervals. (The splined curve remains passing through the original points, but the original points are no longer accessible.) The user is responsible to ensure that an adequate number of intervals is defined along each curve, so as to ensure that differences between chord lengths used in development by triangulation, and actual arc lengths, are at an acceptably small level for the intended purpose.

Each of the surfaces may be dissected into segments by insertion of longitudinal seams through any specified point pair. Green may be added to any edge. A plate list showing bounding rectangular sizes is provided.

All substantive data required by SURFACE may be prepared externally to the program (e.g. within a 3D CAD program, or otherwise by a program such as BASIC, PASCAL, etc.), and imported on request of the user.

A scaling factor may be applied to convert between data systems.

A data generator is provided to demonstrate several data structures, and as a general utility for surfaces of revolution.

Continued….

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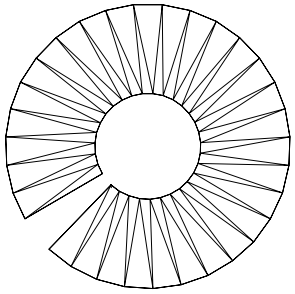
FastSHAPES® - SURFACE

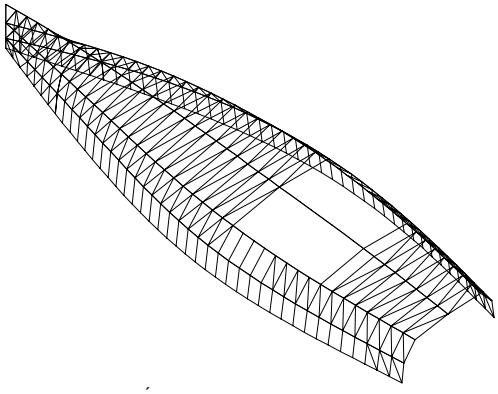
DATA REQUIREMENTS

Size of point coordinate table (Number of curves, Number of points per curve) to be defined.
Splining parameters
Scaling factor.
Green for each edge
Table of point coordinates (Points/curve x number of curves, in X,Y,Z space)
Table of curve end vectors(X.Y,Z direction at end of each curve,)



OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table

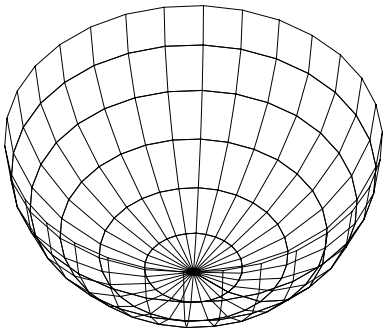


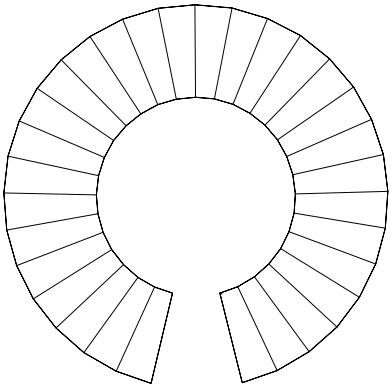
PROGRAM REFERENCE

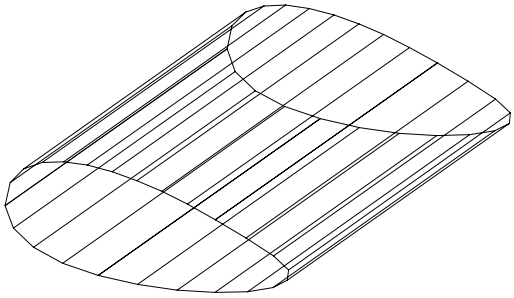
M3FS14 : SURFACE

OTHER REFERENCES

M3FS7 : RECTIRCLE (General shape transitions ai
M3FS11 : BEND (General gored bends)







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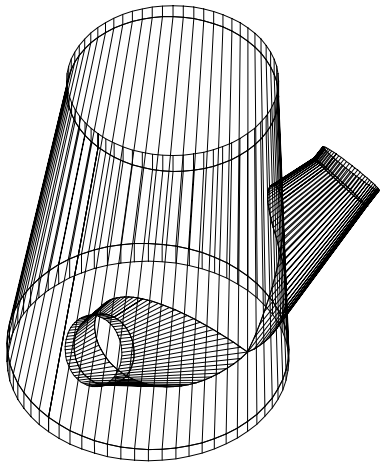


TYPICAL APPLICATIONS

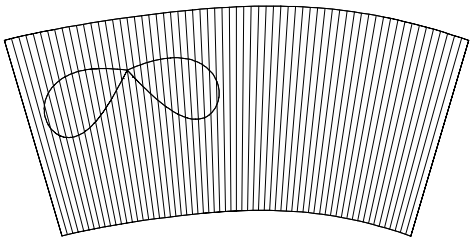
Fluids Conveying - branched takeoffs, conical and circular transitions
Nozzles in tank roofs or hoppers.

TECHNICAL DESCRIPTION

Conical body with 0,1 or 2 conical branches. (two branches are opposite
Body may be upright on its centreline axis, or offset to achieve an upright rear face.
Branches in-plane with body, or offset
Branch axes inclined to body axis.
Collars permitted, mandatory for certain setouts.
Uses radial line method of development, Up to 4 longitudinal joints, gree

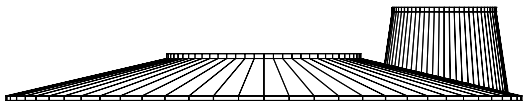
DATA REQUIREMENTS

Selection of offset options and number of branches
Material, Plate thickness, Diameters of body at inlet and outlet
Height of Body, Body collar dimensions (may be mandatory)
Branch base dimension and location, Diameter of branch outlets
Branch collar dimension (may be mandatory)
Branch length and outlet direction
Longitudinal seam locations
Green and seam offset dimensions.



OUTPUT

Patterns in any of the following forms ...
FastCAM file, 2D DXF file, 3D DXF File
NC Program
Coordinate Table
Costing Data, including Mass & Length of Cut

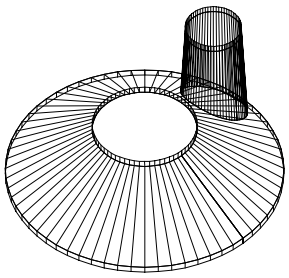


PROGRAM REFERENCE

M3FS15 : CBRANCH

OTHER REFERENCES

M3FS6 : PBRANCH (Pipe branch from main pipe)
M3FS17 : BIFURC8 (Generalized Bifurcation)
M3FS21 : PENSTOCK (General right-circular-conical bends)



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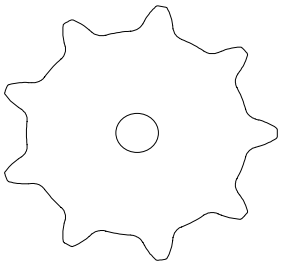
FastSHAPES® - SprocketPLUS 32Bit

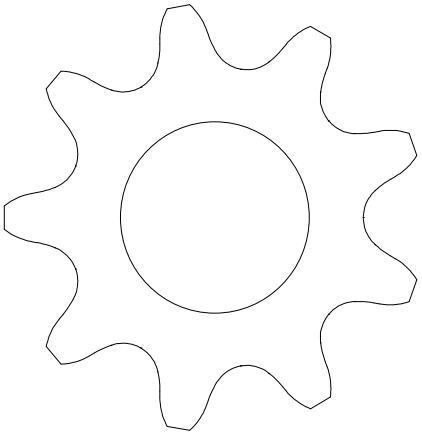
TYPICAL APPLICATIONS

Roller Chain Power Transmission generally.
Drag Chain Conveyor drives
Bucket Elevator drives



TECHNICAL DESCRIPTION

Roller chain sprockets comply with ...
ANSI B29.1 Types I & II
ANSI B29.15 Style 1
Other national standards at user request
Two user-specified setouts, being Types A and B
A : straight-sided tooth
B : straight-sided tooth plus topping clearance, both of which may be specified parametrically, or in terms of fixed dimensions.

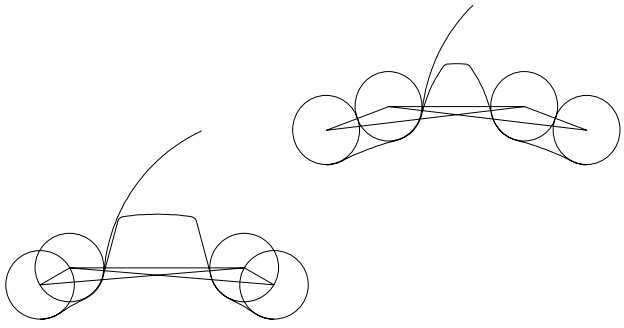


DATA REQUIREMENTS

For Standard Specifications ....
Material, Thickness, Chain Roller Diameter, Chain Pitch
Number of Teeth, Tooth Height, Bore Diameter (optional)
Plus, for User-Specified Types A and B ...
Roller Seating Diameter, Pressure angle
For Type B only, ...
clearance curve (topping) radius, and centre location, PitchLine clearance,
Tooth top corner relief radius, Tooth height (clipping) data

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file
NC Program
Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS16 : SPROCKET PLUS

OTHER REFERENCES

M3FS1 : SPROCKET (Confined to Standard Specification sprocket designs)

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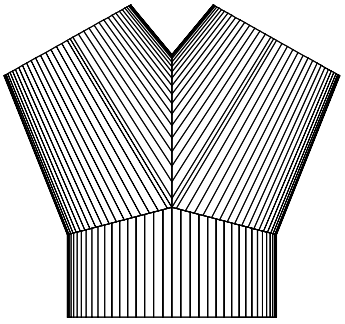
TYPICAL APPLICATIONS

Fluids conveying, generally.



TECHNICAL DESCRIPTION

BIFURC8 provides patterns for the developed plates used in smaller scale bifurcations where typically plate thickness' do not vary throughout the structure, but are still significant. Plate development needs to consider the various welding details and edge preparations required for economical plate cutting and fabrication.

The structure is set out using the method of common central spheres. Development uses the radial line method.

Weld preparations may be specified at all joints, and patterns provide for marking intersection lines at weld prep. depth, inside surface intersections, and outside surface intersections. The purpose of such marking is to facilitate preparation for welding, frequently undertaken as a secondary operation.

Each of the three branches exist as a simple cone, and may be developed in up to 4 segments.

Green may be added to any or all edges of each individual segment.

Patterns may be arranged to defer cutting until after rolling when the development involves significant variation in plate width for rolling.

Patterns include marking of rolling guides (generators) and constant curvature lines.

Match marks for inside and outside of bend, and top & bottom dead centre.

Continued…

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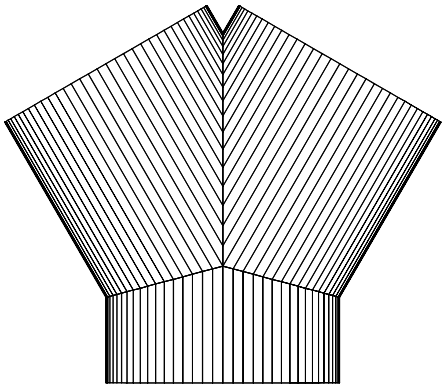
DATA REQUIREMENTS

Branch Diameters, Angles, Lengths
Common Central Sphere Diameter (internal)
Material, Thickness
Segment (longitudinal joint) locations
Green to be added to longitudinal joint edges for each segment in the section
Green to be added to circumferential joint edge 1
Green to be added to circumferential joint edge 2
Weld details



OUTPUT

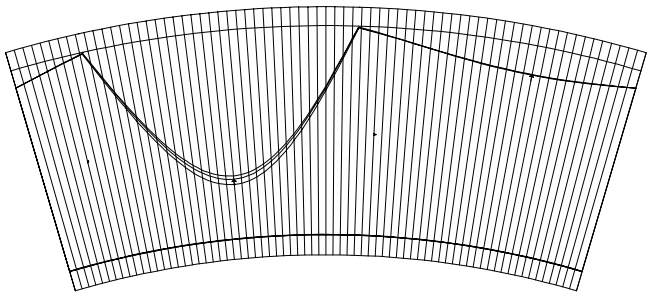
Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table

PROGRAM REFERENCE

M3FS17 : BIFURC8

OTHER REFERENCES

M3FS6 : PBRANCH (Pipe Branch)
M3FS15 : CBRANCH (Conical Branches from a Conical Body)
M3FS18 : BIFURC8PLUS (Generalized Bifurcations, with stiffeners)



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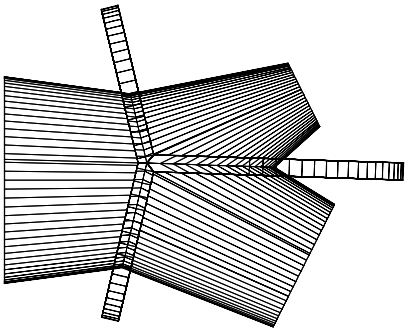
Ref: 9900-1-M3FS18

FastSHAPES® - BIFURCATEPlus 32Bit



TYPICAL APPLICATIONS

Hydro-electric penstock bifurcations
Water and sewage reticulation.

TECHNICAL DESCRIPTION

BIFURC8Plus provides patterns for the developed plates and reinforcing (sickle) plates used in large scale bifurcations where typically plate thicknesses vary throughout the structure, and plate development needs to consider the various welding details and edge preparations required for economical plate cutting and fabrication.

Reinforcing (sickle) plates are optional in any of the three crotches of the bifurcation, and may be either set-in or set-on the shell plates.

The structure is set out using the method of common central spheres. Development uses the radial line method.

Weld preparations may be specified at all joints, and patterns provide for marking intersection lines at weld prep. depth, inside surface intersections, and outside surface intersections. The purpose of such marking is to facilitate preparation for welding, frequently undertaken as a secondary operation.

Each of the three branches may be dissected by circumferential joints into up to four sections, and may additionally have a one or two-section collar, usually cylindrical, to facilitate connection to adjacent pipework.

Each section of a branch or collar can be further dissected into up to four segments by longitudinal joints, located to avoid cruciform weld joint details.

Green may be added to any or all edges of each individual segment.

Patterns may be arranged to defer cutting until after rolling when the development involves significant variation in plate width for rolling.

Patterns include marking of rolling guides (generators) and constant curvature lines.

Match marks for inside and outside of bend, and top & bottom dead centre.

Continued…

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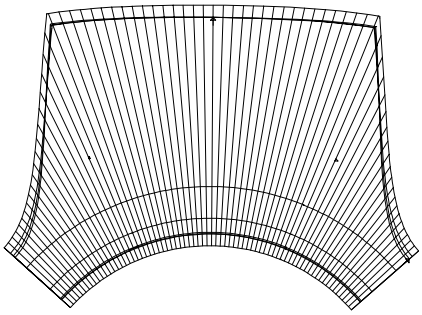
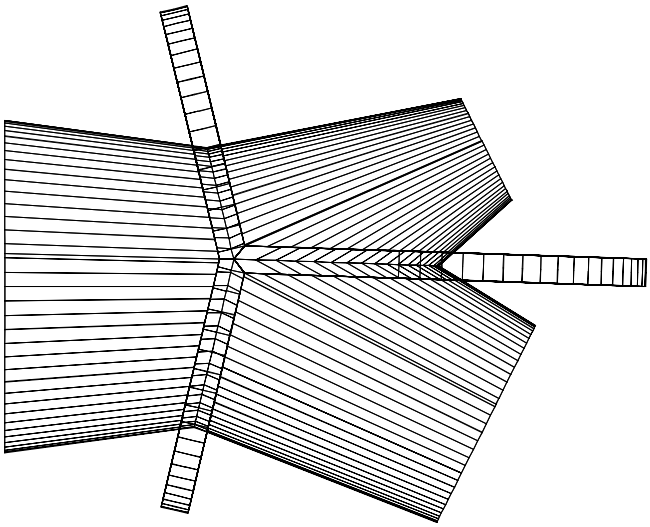
FastSHAPES® - BIFURCATEPlus

DATA REQUIREMENTS

Spheres list, defining XYZ location of centre, plus diameter of sphere (internal diameter of structure).
Stiffeners list, defining thickness and outer profile sizes, plus set-in/on options
Branch lists, defining for each branch & branch collar...
Weld details at adjacent crotch planes (stiffener locations)
Section plane locations
Material thickness for each Section
Segment (longitudinal joint) locations
Green to be added to longitudinal joint edges for each segment in the section
Green to be added to circumferential joint edge 1
Green to be added to circumferential joint edge 2
Circumferential joint (between sections)
Weld details





OUTPUT

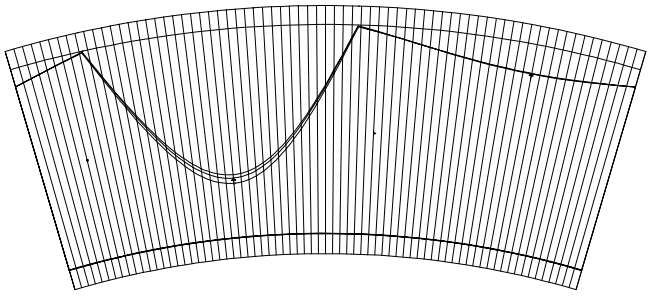
Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table

PROGRAM REFERENCE

M3FS18 : BIFURC8PLUS

OTHER REFERENCES

M3FS6 : PBRANCH (Pipe Branch)
M3FS15 : CBRANCH (Conical Branches from a Conical Body)
M3FS17 : BIFURC8 (Generalized Bifurcation)



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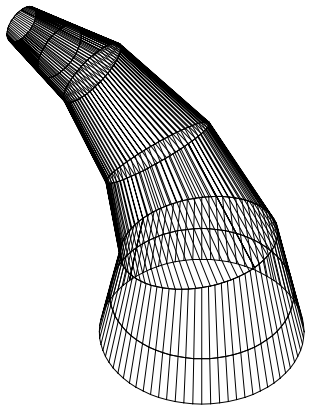
FastSHAPES® - PENSTOCK 32Bit

TYPICAL APPLICATIONS

Hydro-electric penstocks, distributor pipework
Generalized tubes and bends, circular cross-sections



TECHNICAL DESCRIPTION

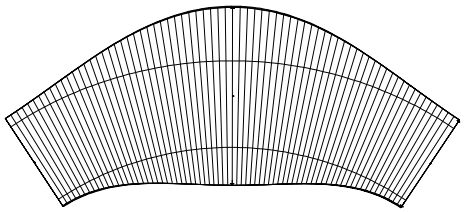
Setout by method of common central spheres
Radial line development method
Weld preparations included in developments
Up to 100 consecutive cones per penstock
Optional intermediate circ. joint per cone, with thickness change at joint.
Up to 4 segments per half or full cone
Match marking provided
Rolling guides marked.
Green provided for.

DATA REQUIREMENTS

Centre coordinates and internal diameter of spheres
Optional intermediate circ. joint plane data
Material, Thickness of each half or full cone
Segment angles for each half or full cone
Green for each circ. Joint, Green for longitudinal joint
Joint Weld details

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Coordinate Table
A list of plate sizes and rolling radius data



PROGRAM REFERENCE

M3FS21 : PENSTOCK

OTHER REFERENCES

M3FS12 : ELBOW (Constant circular cross-section bends)
M3FS13 : LOBSTER (Reducing circular cross-section bends)
M3FS18 : BIFURC8PLUS (General conical bifurcation, with stiffeners)

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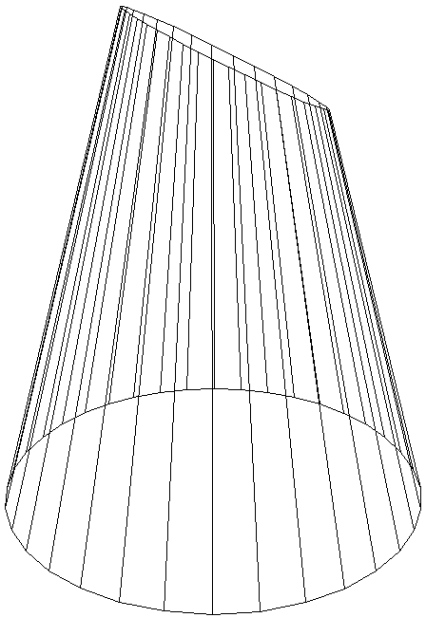
FastSHAPES® - Dr. Cone 32Bit

TYPICAL APPLICATIONS

Educational - College exercises



TECHNICAL DESCRIPTION

Covers the case of a right circular cone frustum having an optional oblique cut through the top.
The number of generators used in the development may be specified, and the development optionally based on chord lengths (the classical drawing board construction equivalent to triangulation) or on arc lengths (the "exact" radial line style development)
The differences between the two techniques, and the effect of number of generators on the first technique, is shown graphically and in tabular form. The table can be copied to the system clipboard and pasted elsewhere as may be required.

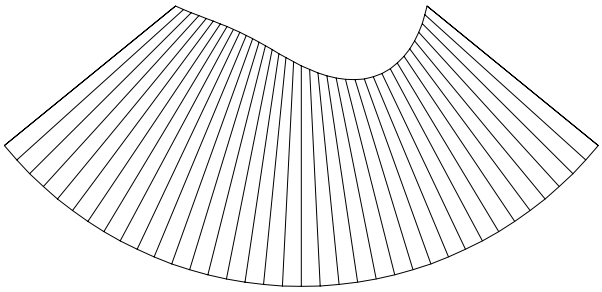
DATA REQUIREMENTS

Cone bottom and top diameters (at mean thickness), plus height of cone
Oblique cut angle (optional)
Number of generators
Select development basis chord/arc length
Material details (optional)

OUTPUT

Educational - as described above
Production:

- FastCAM file
- 2D DXF file, 3D DXF File
- NC Program
- Costing Data, including Mass & Length of Cut



PROGRAM REFERENCE

M3FS22 : Dr. Cone

OTHER REFERENCES

M3FS21 : PENSTOCK (General right-circular-conical bends)
M3FS15 : CBRANCH (Conical Branches from a Conical Body)
M3FS17 : BIFRUC8 (Generalized Bifurcation)
M3FS6 : PBRANCH (Pipe branch from main pipe)

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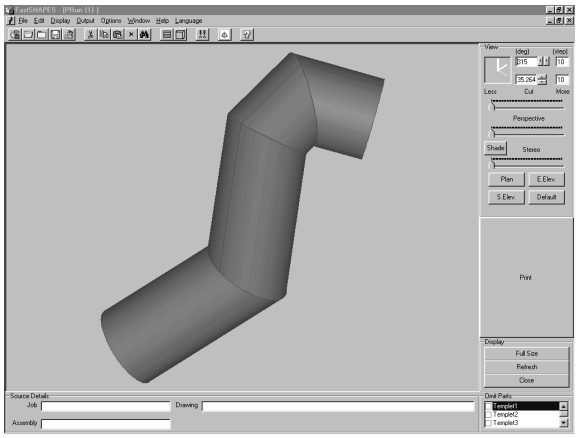

TYPICAL APPLICATIONS

Any large diameter pipework fabricated as "barrels"
Any large or small diameter pipework having complex 3D setting out

TECHNICAL DESCRIPTION

Confined to constant Outside Diameter, thickness pipework
Development by radial line method
Up to 200 pipes per run
Fabrication (flat cutting) option for large diameter pipework
- Cutting patterns provided for mitre cut ends contained where possible within defined plate widths
- Mid-sections patterns provided as a composite length only, to be made up from standard length barrels

Wrap-around template option for small diameter pipework
- Provides a single template/pipe including both ends cut and bend marks

DATA REQUIREMENTS

List of centerline coordinates at each bend in the run
Pipe Details - Material, OD, Thickness
Welding details

Fabrication Option:
- Base Long. Seam angle
- Long. Seam offset angle (alternates between adjacent barrels)
- Green Details
- Min & Max stripped plate widths (for automatic circ. Seam location. Respected where possible)

Wrap-around option:
- Coating thickness
- Template length (optional)

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FastSHAPES® - PipeRun

OUTPUT

Patterns in any of the following forms ...
FastCAM file
2D DXF file, 3D DXF File
NC Program
Costing Data, including Mass & Length of Cut
Wrap-around templates

PROGRAM REFERENCE

M3FS23 : PipeRun

OTHER REFERENCES

M3FS6 : PIPE BRANCH (Pipe branch from main pipe)
M3FS21 : PENSTOCK (General right-circular-conical bends)