TIME STUDIES

Vernon Microprocessor Pipe Cutting Machine

The following times represent typical cycle times for the fabrication of pipe. Material handling typically represents 80% of the overall time, so it is critically important to load, set-up, and unload pipe as efficiently as possible. When comparing Vernon machines against manual methods and competitive machines, please give careful attention to steps 1., 4., and 10. These operations illustrate the relative ease and speed with pipe is handled using our turning-roll and conveyor design.

The first cut includes loading a random length of raw pipe and entering data to describe the entire finished pipe. Subsequent pieces require less time because if the cuts are identical, loading new pipe and unloading finished pipe takes place simultaneously. No data entry or calculation time is required for duplicate pieces.

For preparing time study estimates, the following speeds are typical. For loading, moving, and unloading pipe, the conveying speed is 60 feet/minute. For rapid traverse, the profiling carriage averages 16 feet/minute. For common wall thicknesses from 1/4" to 3/4", oxy-fuel torches burn at 15 inches/minute. Plasma cutting systems typically average 50 inches/minute.

CUT 1 - (2) saddles:

End #1: 6" O.D. x .281" wall on 6" O.D. at 45-degrees
End #2: 6" O.D. x .281" wall on 6" O.D. at 45-degrees
Distance: 72" between end #1 and end #2

	Operation	Time
1.	Convey pipe into cutting area	:43
2.	Operator enters cut variables on console	1:34
3.	Microprocessor calculates path	:10
4.	Operator positions torch over start point	:30
5.	Cut end #1 with oxy-fuel	2:52
6.	Rapid traverse to end #2	:49
7.	Cut end #2 with oxy-fuel	2:39
8.	Return to program start	:42
9.	Convey finished piece from cutting area	:15
	Total time per part (in minutes)	10:14

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CUT 2 - (2) saddles:

End #1: 16" O.D. x .375" wall on 16" O.D. at 45-degrees
End #2: 16" O.D. x .375" wall on 16" O.D. at 45-degrees
Distance: 120" between end #1 and end #2

	Operation	Time
1.	Convey pipe into cutting area	:31
2.	Operator enters cut variables on console	:45
3.	Microprocessor calculates path	:16
4.	Operator positions torch over start point	:30
5.	Cut end #1 with oxy-fuel	6:38
6.	Rapid traverse to end #2	1:06
7.	Cut end #2 with oxy-fuel	6:29
8.	Return to program start	1:08
9.	Convey finished piece from cutting area	:17
	Total time per part (in minutes)	17:40

CUT 3 - saddle & miter:

End #1: 20" O.D. x .500" wall on 36" O.D. & 36" O.D. at 90-degrees with 90-degree roll angle
End #2: 20" O.D. x .500" wall to plate at 30-degrees
Distance: 66" between end #1 and end #2

	Operation	Time
1.	Convey pipe into cutting area	:40
2.	Operator enters cut variables on console	1:25
3.	Microprocessor calculates path	:16
4.	Operator positions torch over start point	:30
5.	Cut end #1 with plasma	1:17
6.	Rapid traverse to end #2	:50
7.	Cut end #2 with plasma	1:10
8.	Return to program start	:42
9.	Convey finished piece from cutting area	:12
	Total time per part (in minutes)	7:02

CUT 4 - pressure vessel with (5) holes:

End #1:	12" O.D. x .375" wall with straight cut & bevel
End #2:	12" O.D. x .375" wall with straight cut & bevel
Holes:	(2) 9"x9" rectangular holes, (2) 1" diameter holes and (1) 8" diameter hole
Distance:	26" between end #1 and end #2

	Operation	**Time**
1.	Convey pipe into cutting area	:40
2.	Operator enters cut variables on console	1:25
3.	Microprocessor calculates path	:16
4.	Operator positions torch over start point	:15
5.	Straight cut end #1 with plasma	:59
6.	Traverse to hole #1	:12
7.	Cut hole #1 with plasma	:53
6.	Traverse to hole #2	:44
8.	Cut hole #2 with plasma	:53
9.	Traverse to hole #3	:41
10.	Cut hole #3with plasma	:05
11.	Traverse to hole #4	:04
12.	Cut hole #4 with plasma	:05
13.	Traverse to hole #5	:49
14.	Cut hole #5 with plasma	:37
15.	Traverse to end #2	:40
16.	Straight cut end #2 with plasma	:59
17.	Return to program start	:42
18.	Convey finished piece from cutting area	:12
	Total time per part (in minutes)	7:11