Adjusting Nut

Activity-based questions

1 Chunk 1: Flat Grinding - Machine 11 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 7. Flat Grinding - Machine 11 is preceded by: Laser Marking - Machine 7 (1 times). Flat Grinding - Machine 11 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103.

Metadata: {'score': 0.983661949634552, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9698802310611018, 'rerank_score': 0.983661949634552, 'original_score': 0.9698802310611018, 'final_score': 0.983661949634552, 'original_score': 0.98366194646464, 'original_score': 0.983661946464, 'original_score': 0.9836619464, 'original_score': 0.9836

Chunk 2: Turning & Milling - Machine 8 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 10 times. Total number of activities: 7. Turning & Milling - Machine 8 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 8 is preceded by: Machine 8 (8 times), Turning & Milling - Machine 8 (8 times), Turning & Milling

Metadata: {'score': 0.9417544603347778, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 8', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9576877852541377, 'rerank_score': 0.9417544603347778, 'original_score': 0.9576877852541377, 'final_score': 0.9417544603347778}

Chunk 3: Packing is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Packing is an ending activity that concludes the workflow (2 cases end here). Packing is preceded by: Final Inspection Q.C. (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. Metadata: ('score': 0.1970609575510025, 'end_count': 2, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 0.1970609575510025)

Chunk 4: Laser Marking - Machine 7 is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Laser Marking - Machine 7 is preceded by: Turning & Milling Q.C. (1 times), Final Inspection Q.C. (1 times). Laser Marking - Machine 7 is followed by: Flat Grinding - Machine 11 (1 times), Packing (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58.

Metadata: {'score': 0.07680001109838486, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Laser Marking - Machine 7', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5405436554553995, 'rerank_score': 0.07680001109838486, 'original_score': 0.5405436554553995, 'final_score': 0.07680001109838486

Chunk 5: Turning & Milling Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 7. Turning & Milling Q.C. is preceded by: Turning & Milling -Machine 8 (2 times), Turning & Milling Q.C. (1 times), Turning & Milling Q.C. (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103. This activity has rework cases. Turning & Milling Q.C. has a self-loop, directly followed by itself 1 times (rank 4/4 activities with rework within itself).

Metadata: {\score\: 0.06677842140197754, \cdot one, \cd

2 Chunk 1: Flat Grinding - Machine 11 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 7. Flat Grinding - Machine 11 is preceded by: Laser Marking - Machine 7 (1 times). Flat Grinding - Machine 11 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103.

Metadata: ('score': 0.2997104525566101, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.927939792111748, 'rerank_score': 0.2997104525566101, 'original_score': 0.927939792111748, 'final_score': 0.997104525566101, 'original_score': 0.927939792111748, 'final_score': 0.997104525566101, 'original_score': 0.997939792111748, 'final_score': 0.997104525566101, 'original_score': 0.997939792111748, 'final_score': 0.997104525566101, 'original_score': 0.997939792111748, 'final_score': 0.997939792111748,

Chunk 2: Turning & Milling - Machine 8 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 10 times. Total number of activities: 7. Turning & Milling - Machine 8 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 8 is preceded by: Turning & Milling - Machine 8 (8 times), Turning & Milling - Machine 8 is followed by: Turning & Milling - Machine 8 has a self-loop, directly followed by itself 8 times (rank 1/4 activities with rework within itself).

Metadata: {'score': 0.2031412273645401, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 8', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9928575322172593, 'rerank_score': 0.2031412273645401, 'original_score': 0.9928575322172593, 'final_score': 0.2031412273645401}

Chunk 3: Laser Marking - Machine 7 is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Laser Marking - Machine 7 is preceded by: Turning & Milling Q.C. (1 times), Final Inspection Q.C. (1 times). Laser Marking - Machine 7 is followed by: Flat Grinding - Machine 11 (1 times), Packing (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58.

Metadata: {'score': 0.11490444093942642, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Laser Marking - Machine 7', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5979799601454626, 'rerank_score': 0.11490444093942642, 'original_score': 0.5979799601454626, 'final_score': 0.597979601454626, 'final_score': 0.5979796014564626, 'final_score': 0.597979

Chunk 4: Packing is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Packing is an ending activity that concludes the workflow (2 cases end here). Packing is preceded by: Final Inspection Q.C. (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. Metadata: ('score': 0.10410069674253464, 'end_count': 2, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 0.96231995636068, 'rerank_score': 0.10410069674253464, 'original_score': 0.96231995636068, 'final_score': 0.10410069674253464)

Chunk 5: Turning & Milling Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 7. Turning & Milling Q.C. is preceded by: Turning & Milling - Machine 8 (2 times), Turning & Milling Q.C. (1 times). Turning & Milling Q.C. has a self-loop, directly followed by itself 1 times (rank 4/4 activities with rework within itself).

Metadata: {'score': 0.08034312725067139, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning & Milling Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.6256743130124801, 'rerank_score': 0.08034312725067139, 'original_score': 0.6256743130124801, 'final_score': 0.08034312725067139}

Chunk 1: Packing is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Packing is an ending activity that concludes the workflow (2 cases end here). Packing is preceded by: Final Inspection Q.C. (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. Metadata: ('score': 0.26472362875938416, 'end_count': 2, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 1.0, 'freank_score': 0.26472362875938416}

Chunk 2: Turning & Milling - Machine 8 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 10 times. Total number of activities: 7. Turning & Milling - Machine 8 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 8 is preceded by: Turning & Milling - Machine 8 (8 times), Turning & Milling - Machine 8 is followed by: Turning & Milling - Machine 8 has a self-loop, directly followed by itself 8 times (rank 1/4 activities with rework within itself).

Metadata: {'score': 0.04159734025597572, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 8', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.8603676112314815, 'rerank_score': 0.04159734025597572, 'original_score': 0.8603676112314815, 'final_score': 0.04159734025597572}

Chunk 3: Round Grinding - Manual is an activity in this workflow. This activity executed 4 times. Total number of activities: 7. Round Grinding - Manual is a starting activity that begins the workflow (1 cases start here). Round Grinding - Manual is preceded by: Round Grinding - Manual (3 times). Round Grinding - Manual is followed by: Round Grinding - Manual is a self-loop, directly followed by itself 3 times (rank 2/4 activities with rework within itself).

Metadata: {'score': 0.03144175186753273, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Round Grinding - Manual', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.8367508484821589, 'rerank_score': 0.03144175186753273, 'original_score': 0.8367508484821589, 'final_score': 0.03144175186753273}

Chunk 4: Turning & Milling Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 7. Turning & Milling Q.C. is preceded by: Turning & Milling - Machine 8 (2 times), Turning & Milling Q.C. (1 times). Turning & Milling Q.C. is followed by: Turning & Milling Q.C. (1 times), Turning & Milling - Machine 8 (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103. This activity has rework cases. Turning & Milling Q.C. has a self-loop, directly followed by itself 1 times (rank 4/4 activities with rework within itself).

Metadata: {'score': 0.0002701389603316784, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning & Milling Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5900782695406581, 'rerank_score': 0.0002701389603316784, 'original_score': 0.5900782695406581, 'final_score': 0.0002701389603316784}

Chunk 5: Flat Grinding - Machine 11 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 7. Flat Grinding - Machine 11 is preceded by: Laser Marking - Machine 7 (1 times). Flat Grinding - Machine 11 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103.

Metadata: {'score': 0.0001992110483115539, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.6843186171863733, 'rerank_score': 0.0001992110483115539, 'original_score': 0.6843186171863733, 'final_score': 0.0001992110483115539}

4 Chunk 1: Laser Marking - Machine 7 is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Laser Marking - Machine 7 is preceded by: Turning & Milling Q.C. (1 times), Final Inspection Q.C. (1 times). Laser Marking - Machine 7 is followed by: Flat Grinding - Machine 11 (1 times), Packing (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58.

Metadata: ('score': 0.9996059536933899, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Laser Marking - Machine 7', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 1.0, 'rerank_score': 0.9996059536933899, 'original_score': 1.0, 'final_score': 0.9996059536933899}

Chunk 2: Flat Grinding - Machine 11 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 7. Flat Grinding - Machine 11 is preceded by: Laser Marking - Machine 7 (1 times). Flat Grinding - Machine 11 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103.

Metadata: ('score': 0.9970636963844299, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.7855368968858423, 'rerank_score': 0.9970636963844299, 'original_score': 0.7855368968858423, 'final_score': 0.9970636963844299)

Chunk 3: Packing is an activity in this workflow. This activity executed 2 times. Total number of activities: 7. Packing is an ending activity that concludes the workflow (2 cases end here). Packing is preceded by: Final Inspection Q.C. (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. Metadata: ('score': 0.9955464601516724, 'end_count': 2, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 0.7111269872631393, 'final_score': 0.9955464601516724,' original_score': 0.99

Chunk 4: Final Inspection Q.C. is an activity in this workflow. This activity executed 4 times. Total number of activities: 7. Final Inspection Q.C. is preceded by: Flat Grinding - Machine 11 (1 times), Final Inspection Q.C. (2 times), Round Grinding - Manual (1 times). Final Inspection Q.C. (2 times), Packing (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. This activity has rework cases. Final Inspection Q.C. has a self-loop, directly followed by itself 2 times (rank 3/4 activities with rework within itself).

Metadata: {'score': 0.9852098822593689, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Final Inspection Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5774804013567174, 'rerank_score': 0.9852098822593689, 'original_score': 0.5774804013567174, 'final_score': 0.9852098822593689)

Chunk 5: Turning & Milling Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 7. Turning & Milling Q.C. is preceded by: Turning & Milling -Machine 8 (2 times), Turning & Milling Q.C. (1 times), Turning & Milling Q.C. (1 times), Turning & Milling Q.C. is followed by: Turning & Milling Q.C. (1 times), Turning & Milling -Machine 8 (1 times), Laser Marking -Machine 7 (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103. This activity has rework cases. Turning & Milling Q.C. has a self-loop, directly followed by itself 1 times (rank 4/4 activities with rework within itself).

Metadata: {'score': 0.9830104112625122, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning & Milling Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.6062223269033901, 'rerank_score': 0.9830104112625122, 'original_score': 0.6062223269033901, 'final_score': 0.9830104112625122}

5 Chunk 1: Turning & Milling Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 7. Turning & Milling Q.C. is preceded by: Turning & Milling - Machine 8 (2 times), Turning & Milling Q.C. (1 times). Turning & Milling Q.C. is followed by: Turning & Milling Q.C. (1 times), Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop, directly followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his followed by: Turning & Milling Q.C. has a self-loop his foll

Metadata: {'score': 0.7922853827476501, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning & Milling Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9610883432188151, 'rerank_score': 0.7922853827476501, 'original_score': 0.9610883432188151, 'final_score': 0.7922853827476501}

Chunk 2: Final Inspection Q.C. is an activity in this workflow. This activity executed 4 times. Total number of activities: 7. Final Inspection Q.C. is preceded by: Flat Grinding - Machine 11 (1 times), Final Inspection Q.C. (2 times), Round Grinding - Manual (1 times). Final Inspection Q.C. (2 times), Packing (1 times), Laser Marking - Machine 7 (1 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 103, Case 58. This activity has rework cases. Final Inspection Q.C. has a self-loop, directly followed by itself 2 times (rank 3/4 activities with rework within itself).

Metadata: {'score': 0.7452413439750671, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Final Inspection Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9591509871952111, 'rerank_score': 0.7452413439750671, 'original_score': 0.9591509871952111, 'final_score': 0.7452413439750671}

Chunk 3: Round Grinding - Manual is an activity in this workflow. This activity executed 4 times. Total number of activities: 7. Round Grinding - Manual is a starting activity that begins the workflow (1 cases start here). Round Grinding - Manual is preceded by: Round Grinding - Manual (3 times). Round Grinding - Manual is followed by: Round Grinding - Manual (3 times). Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 58. This activity has rework cases. Round Grinding - Manual has a self-loop, directly followed by itself 3 times (rank 2/4 activities with rework within itself).

Metadata: ('score': 0.6621086001396179, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Round Grinding - Manual', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9576859841279639, 'rerank_score': 0.6621086001396179, 'original_score': 0.9576859841279639, 'final_score': 0.9576859841279639, 'original_score': 0.9576859841279639, 'final_score': 0.9576859841279639, 'original_score': 0.957685

Chunk 4: Turning & Milling - Machine 8 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 10 times. Total number of activities: 7. Turning & Milling - Machine 8 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 8 is preceded by: Turning & Milling - Machine 8 (8 times), Turning & Milling Q.C. (1 times). Turning & Milling - Machine 8 (8 times), Turning & Milling Q.C. (2 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103. This activity has rework cases. Turning & Milling - Machine 8 has a self-loop, directly followed by itself 8 times (rank 1/4 activities with rework within itself).

Metadata: {'score': 0.5914090275764465, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 8', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9650256207733343, 'rerank_score': 0.5914090275764465, 'original_score': 0.9650256207733343, 'final_score': 0.5914090275764465}

Chunk 5: Flat Grinding - Machine 11 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 7. Flat Grinding - Machine 11 is preceded by: Laser Marking - Machine 7 (1 times). Flat Grinding - Machine 11 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 103.

Metadata: {'score': 0.0006855615647509694, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9577766453301512, 'rerank_score': 0.0006855615647509694, 'original_score': 0.9577766453301512, 'final_score': 0.957776645301512, 'final_score': 0.957776645301512, 'final_score': 0.957776645301512, 'final_score': 0.957776645301512, 'final_score': 0.9577766453012, 'final_score':

Process-based questions

6 Chunk 1: Process 'Round Grinding - Manual → Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 7 days 8 hrs 59 mins to complete. (min: 7 days 8 hrs 59 mins, max: 7 days 8 hrs 59 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.992673933506012, 'rank': 11, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk': 'hybrid_score': 0.9920735752806067, 'fraak score': 0.992673933506012, 'original_score': 0.9920735752806067, 'final_score': 0.992673933506012}

Chunk 2: Process 'Turning & Milling - Machine 8 Turning & Milling - Machine 8' is a transition that occurs 8 times. This transition takes on average 10 hrs 0 mins 52 secs to complete. (min: 1 hrs 11 mins, max: 1 days 20 hrs 33 mins). It has a self-loop pattern, directly followed by itself 8 times (rank 1/4 self-loop transitions). This transition has the highest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9818087220191956, 'rank': 1, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8', 'frequency': 8, 'type': 'process_chunk', 'hybrid_score': 0.72447687303866, 'rerank_score': 0.9818087220191956, 'original_score': 0.72447687303866, 'final_score': 0.9818087220191956}

Chunk 3: Process 'Final Inspection Q.C. — Packing' is a transition that occurs 1 times. This transition takes on average 12 hrs 56 mins to complete. (min: 12 hrs 56 mins, max: 12 hrs 56 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9795947670936584, 'rank': 10, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6192297083561874, 'reank_score': 0.9795947670936584, 'original_score': 0.6192297083561874, 'final_score': 0.9795947670936584}

Chunk 4: Process 'Laser Marking - Machine 7 packing' is a transition that occurs 1 times. This transition takes on average 8 hrs 36 mins to complete. (min: 8 hrs 36 mins, max: 8 hrs 36 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: ('score': 0.9708535671234131, 'rank': 13, 'source': 'process_based_chunking', 'path_string': 'Laser Marking - Machine 7 → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6090057534120754, 'rerank_score': 0.9708535671234131, 'original_score': 0.6090057534120754, 'final_score': 0.9708535671234131}

Chunk 5: Process 'Flat Grinding - Machine 11 \rightarrow Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 3 hrs 53 mins to complete. (min: 3 hrs 53 mins, max: 3 hrs 53 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9680320024490356, 'rank': 9, 'source': 'process_based_chunking', 'path_string': 'Flat Grinding - Machine 11 → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6126672521358268, 'rerank_score': 0.9680320024490356, 'original_score': 0.6126672521358268, 'final_score': 0.9680320024490356}

7 Chunk 1: Process 'Round Grinding - Manual → Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 7 days 8 hrs 59 mins to complete. (min: 7 days 8 hrs 59 mins, max: 7 days 8 hrs 59 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.5433651208877563, 'rank': 11, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9826029803776974, 'rerank_score': 0.5433651208877563, 'original_score': 0.9826029803776974, 'final_score': 0.5433651208877563}

Chunk 2: Process 'Laser Marking - Machine 7 → Packing' is a transition that occurs 1 times. This transition takes on average 8 hrs 36 mins to complete. (min: 8 hrs 36 mins, max: 8 hrs 36 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.0001069629070116207, 'rank': 13, 'source': 'process_based_chunking', 'path_string': 'Laser Marking - Machine 7 → Packing', 'frequency': 1, 'type': 'process chunk', 'hybrid score': 0.6691529351971632, 'rerank score': 0.0001069629070116207, 'original score': 0.6691529351971632, 'final score': 0.0001069629070116207}

Chunk 3: Process 'Flat Grinding - Machine 11 \rightarrow Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 3 hrs 53 mins to complete. (min: 3 hrs 53 mins, max: 3 hrs 53 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.00010042380745289847, 'rank': 9, 'source': 'process_based_chunking', 'path_string': 'Flat Grinding - Machine 11 → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6717795164035363, 'reank_score': 0.00010042380745289847, 'original_score': 0.6717795164035363, 'final_score': 0.00010042380745289847}

Chunk 4: Process 'Round Grinding - Manual — Round Grinding - Manual' is a transition that occurs 3 times. This transition takes on average 22 hrs 18 mins 40 secs to complete. (min: 2 hrs 21 mins, max: 2 days 11 hrs 58 mins). It has a self-loop pattern, directly followed by itself 3 times (rank 2/4 self-loop transitions).

Metadata: 'fscore': 9.89923209999688e-05, 'rank': 2, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Round Grinding - Manual', 'frequency': 3, 'type': 'process chunk', 'hybrid score': 0.5595159182663868, 'fsnal score': 9.89923209999688e-05, 'original score': 0.5595159182663868, 'fsnal score': 9.89923209999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal score': 9.89923209999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal score': 9.89923209999688e-05, 'diginal score': 9.8992320999688e-05, 'diginal sco

Chunk 5: Process 'Final Inspection Q.C. \rightarrow Packing' is a transition that occurs 1 times. This transition takes on average 12 hrs 56 mins to complete. (min: 12 hrs 56 mins, max: 12 hrs 56 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 9.805423906072974e-05, 'rank': 10, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.694600494127873, 'final_score': 9.805423906072974e-05}

8 Chunk 1: Process 'Final Inspection Q.C. → Final Inspection Q.C.' is a transition that occurs 2 times. This transition takes on average 9 hrs 3 mins 30 secs to complete. (min: 1 hrs 29 mins, max: 16 hrs 38 mins). It has a self-loop pattern, directly followed by itself 2 times (rank 3/4 self-loop transitions).

Metadata: {'score': 0.014869940467178822, 'rank': 4, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Final Inspection Q.C.', 'frequency': 2, 'type': 'process_chunk', 'hybrid_score': 0.6, 'rerank_score': 0.014869940467178822, 'original_score': 0.6, 'final_score': 0.014869940467178822}

Chunk 2: Process 'Round Grinding - Manual — Round Grinding - Manual' is a transition that occurs 3 times. This transition takes on average 22 hrs 18 mins 40 secs to complete. (min: 2 hrs 21 mins, max: 2 days 11 hrs 58 mins). It has a self-loop pattern, directly followed by itself 3 times (rank 2/4 self-loop transitions).

Metadata: ('score': 0.008615221828222275, 'rank': 2, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual', 'frequency': 3, 'type': 'process_chunk', 'hybrid_score': 0.5910157295906782, 'rerank_score': 0.008615221828222275, 'original_score': 0.5910157295906782, 'final_score': 0.008615221828222275}

Chunk 3: Process 'Turning & Milling - Machine 8 Turning & Milling - Machine 8' is a transition that occurs 8 times. This transition takes on average 10 hrs 0 mins 52 secs to complete. (min: 1 hrs 11 mins, max: 1 days 20 hrs 33 mins). It has a self-loop pattern, directly followed by itself 8 times (rank 1/4 self-loop transitions). This transition has the highest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.007506611756980419, 'rank': 1, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8', 'frequency': 8, 'type': 'process_chunk', 'hybrid_score': 0.5882260912594179, 'rerank_score': 0.007506611756980419, 'original_score': 0.5882260912594179, 'final_score': 0.007506611756980419, 'original_score': 0.5882260912594179, 'original_score': 0.5882260912594179, 'original_score': 0.007506611756980419, 'original_score': 0.007506611756980419,

Chunk 4: Process 'Turning & Milling Q.C. \rightarrow Turning & Milling Q.C.' is a transition that occurs 1 times. This transition takes on average 1 days 21 hrs 38 mins to complete. (min: 1 days 21 hrs 38 mins, max: 1 days 21 hrs 38 mins). It has a self-loop pattern, directly followed by itself 1 times (rank 4/4 self-loop transitions). This transition has the lowest frequency or execution count out of 13 transitions.

 $Metadata: \{`score': 0.006691335700452328, 'rank': 5, 'source': 'process_based_chunking', 'path_string': 'Turning \& Milling Q.C. \rightarrow Turning \& Milling Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.5941730356652624, 'frank_score': 0.006691335700452328, 'original_score': 0.5941730356652624, 'final_score': 0.006691335700452328\}$

Chunk 5: Process 'Turning & Milling Q.C. → Turning & Milling - Machine 8' is a transition that occurs 1 times. This transition takes on average 2 hrs 21 mins to complete. (min: 2 hrs 21 mins, max: 2 hrs 21 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 1.195187996927416e-05, 'rank': 6, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling Q.C. → Turning & Milling - Machine 8', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.573259289135025, 'final_score': 1.195187996927416e-05, 'original_score': 0.573259289135025, 'final_score': 1.195187996927416e-05, 'original_score': 0.573259289135025, 'final_score': 1.195187996927416e-05, 'original_score': 0.573259289135025, 'final_score': 0.

Chunk 1: Process 'Round Grinding - Manual → Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 7 days 8 hrs 59 mins, the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution out of 13 transitions.

Metadata: {'score': 0.012811471708118916, 'rank': 11, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 1.0, 'rerank_score': 0.012811471708118916}

Chunk 2: Process 'Final Inspection Q.C. → Laser Marking - Machine 7' is a transition that occurs 1 times. This transition takes on average 1 hrs 13 mins to complete. (min: 1 hrs 13 mins, max: 1 hrs 13 mins). This is the fastest/shortest/quickest/lowest transition in terms of execution time. This transition has the lowest frequency or execution count out of 13 transitions. Metadata: ('score': 0.0011312966234982014, 'rank': 12, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Laser Marking - Machine 7', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9532524727464834, 'ferank_score': 0.0011312966234982014)

Chunk 3: Process 'Final Inspection Q.C. — Packing' is a transition that occurs 1 times. This transition takes on average 12 hrs 56 mins to complete. (min: 12 hrs 56 mins, max: 12 hrs 56 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.0006734539056196809, 'rank': 10, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid score': 0.6536430989600993, 'frinal score': 0.0006734539056196809}

Chunk 4: Process 'Laser Marking - Machine 7 → Packing' is a transition that occurs 1 times. This transition takes on average 8 hrs 36 mins to complete. (min: 8 hrs 36 mins, max: 8 hrs 36 mins). This transition has the lowest frequency or execution count out of 13 transitions.

 $Metadata: \{'score': 0.0005311888526193798, 'rank': 13, 'source': 'process_based_chunking', 'path_string': 'Laser Marking - Machine 7 \rightarrow Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6389650133778323, 'rerank_score': 0.0005311888526193798, 'original_score': 0.6389650133778323, 'frinal_score': 0.0005311888526193798\}$

Chunk 5: Process 'Flat Grinding - Machine 11 → Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 3 hrs 53 mins to complete. (min: 3 hrs 53 mins, max: 3 hrs 53 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.0004791800456587225, 'rank': 9, 'source': 'process_based_chunking', 'path_string': 'Flat Grinding - Machine 11 → Final Inspection Q.C.', 'frequency': 1, 'type':

Metadata: { score: 0.0004/9180045658/225, 'rank: 9, 'source: 'process_based_chunking', 'path_string': Hat Grinding - Machine 11 → Final Inspection Q.C.', 'frequency: 1, 'type' 'process_chunk', 'hybrid_score': 0.6348400289789602, 'rerank_score': 0.0004791800456587225, 'original_score': 0.6348400289789602, 'final_score': 0.0004791800456587225}

10 Chunk 1: Process 'Final Inspection Q.C. — Laser Marking - Machine 7' is a transition that occurs 1 times. This transition takes on average 1 hrs 13 mins to complete. (min: 1 hrs 13 mins, max: 1 hrs 13 mins). This is the fastest/shortest/quickest/lowest transition in terms of execution time. This transition has the lowest frequency or execution count out of 13 transitions. Metadata: {'score': 0.9683548212051392, 'rank': 12, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. — Laser Marking - Machine 7', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.8256916322130817, 'rerank_score': 0.9683548212051392, 'original_score': 0.8256916322130817, 'final_score': 0.9683548212051392}

Chunk 2: Process 'Round Grinding - Manual \rightarrow Final Inspection Q.C.' is a transition that occurs 1 times. This transition takes on average 7 days 8 hrs 59 mins to complete. (min: 7 days 8 hrs 59 mins, max: 7 days 8 hrs 59 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9674022197723389, 'rank': 11, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Manual → Final Inspection Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9891862837934474, 'rerank_score': 0.9674022197723389, 'original_score': 0.9891862837934474, 'final_score': 0.9674022197723389)

Chunk 3: Process 'Final Inspection Q.C. \rightarrow Packing' is a transition that occurs 1 times. This transition takes on average 12 hrs 56 mins to complete. (min: 12 hrs 56 mins, max: 12 hrs 56 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9141255021095276, 'rank': 10, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6704330791401929, 'rerank_score': 0.9141255021095276, 'original_score': 0.6704330791401929, 'final_score': 0.9141255021095276}

Chunk 4: Process 'Laser Marking - Machine 7 Packing' is a transition that occurs 1 times. This transition takes on average 8 hrs 36 mins to complete. (min: 8 hrs 36 mins, max: 8 hrs 36 mins). This transition has the lowest frequency or execution count out of 13 transitions.

Metadata: {'score': 0.9131819605827332, 'rank': 13, 'source': 'process_based_chunking', 'path_string': 'Laser Marking - Machine 7 → Packing', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6597595798585709, 'rerank_score': 0.9131819605827332, 'original_score': 0.6597595798585709, 'final_score': 0.9131819605827332}

Chunk 5: Process 'Laser Marking - Machine 7 → Flat Grinding - Machine 11' is a transition that occurs 1 times. This transition takes on average 3 hrs 18 mins to complete. (min: 3 hrs 18 mins, max: 3 hrs 18 mins). This transition has the lowest frequency or execution count out of 13 transitions.

 $Metadata: \{'score': 0.8618019819259644, 'rank': 8, 'source': 'process_based_chunking', 'path_string': 'laser Marking - Machine 7 \rightarrow Flat Grinding - Machine 11', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6748498845285797, 'rerank_score': 0.8618019819259644, 'original_score': 0.6748498845285797, 'frequency': 0.8618019819259644, 'original_score': 0.674849845285797, 'frequency': 0.8618019819259644, 'original_score': 0.67484984585797, 'frequency': 0.8618019819259644, 'original_score': 0.67484984585797, 'frequency': 0.8618019819259644, 'original_score': 0.67484984585797, 'frequency': 0.8618019819259644, 'original_score': 0.861801981925964, 'original_score': 0.861801981925964, 'original_score': 0.86180198192$

Variant-based questions

11 Chunk 1: Process variant 'Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Found Grinding - Manual → Round Grinding - Manual → Found Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing' represents an execution pattern found in 1 cases. Total number of variants: 2. This variant consists of 7 activities and takes on average 10 days 13 hrs 44 mins to complete. (min: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins). This is the slowest variant. This is the shortest variant. This variant starts with Round Grinding - Manual, ends with Packing. This variant represents 50.0% among all variants. Case IDs following this variant: Case 58. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

Metadata: {'score': 0.934739887714386, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing', 'hybrid_score': 1.0, 'rerank_score': 0.934739887714386, 'original score': 1.0, 'final score': 0.934739887714386, 'original score': 1.0, 'final score': 0.934739887714386}

Chunk 2: Process variant 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turn

includes unique activities not found in other variants: Turning & Milling Q.C., Flat Grinding - Machine 11, Turning & Milling - Machine 8.

Metadata: {Score': 0.6335103511810303, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 →

12 Chunk 1: Process variant 'Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing' represents an execution pattern found in 1 cases. Total number of variants: 2. This variant consists of 7 activities and takes on average 10 days 13 hrs 44 mins to complete. (min: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins). This is the slowest variant. This is the shortest variant. This variant starts with Round Grinding - Manual, ends with Packing. This variant represents 50.0% among all variants. Case IDs following this variant: Case 58. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

Metadata: {'score': 0.00101759796962142, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing', 'hybrid_score': 0.9828822656853116, 'rerank score': 0.00101759796962142, 'original score': 0.9828822656853116, 'final score': 0.00101759796962142}

Chunk 2: Process variant 'Turning & Milling - Machine 8 → Turning & Milling - Machine 11, Turning & Milling - Machine 8 → Tur

 $\label{eq:metadata: strong: 1.4060289686312899e-05, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 8 <math>\rightarrow$ Turning & Milling - Machine 8 \rightarrow Turning & Milli

13 Chunk 1: Process variant 'Turning & Milling - Machine 8 → Turning & Milling - Machine 9. Flat Grinding - Machine 11 → Final Inspection Q.C. → Fina

Metadata: {'score': 0.003476480720564723, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turning

Chunk 2: Process variant 'Round Grinding - Manual \rightarrow Round Grinding - Manual \rightarrow Round Grinding - Manual \rightarrow Final Inspection Q.C. \rightarrow Laser Marking - Machine 7 \rightarrow Packing' represents an execution pattern found in 1 cases. Total number of variants: 2. This variant consists of 7 activities and takes on average 10 days 13 hrs 44 mins to complete. (min: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins, This is the slowest variant. This is the shortest variant. This variant starts with Round Grinding - Manual, ends with Packing. This variant represents 50.0% among all variants. Case IDs following this variant: Case 58. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

 $Metadata: \{'score': 0.0022529233247041702, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Round Grinding - Manual <math>\rightarrow$ Round Grinding - Manual \rightarrow Round Grinding - M

14 Chunk 1: Process variant 'Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing' represents an execution pattern found in 1 cases. Total number of variants: 2. This variant consists of 7 activities and takes on average 10 days 13 hrs 44 mins to complete. (min: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins). This is the slowest variant. This is the shortest variant. This variant starts with Round Grinding - Manual, ends with Packing. This variant represents 50.0% among all variants. Case IDs following this variant: Case 58. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

Metadata: {'score': 0.005584788043051958, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing', 'hybrid_score': 0.9906761573517243, 'rerank score': 0.005584788043051958, 'original score': 0.9906761573517243, 'final score': 0.99067615

Chunk 2: Process variant 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turn

Metadata: {'score': 2.221942486357875e-05, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turning

Chunk 1: Process variant 'Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing' represents an execution pattern found in 1 cases. Total number of variants: 2. This variant consists of 7 activities and takes on average 10 days 13 hrs 44 mins, to complete. (min: 10 days 13 hrs 44 mins, max: 10 days 13 hrs 44 mins). This is the slowest variant. This is the shortest variant. This variant starts with Round Grinding - Manual, ends with Packing. This variant represents 50.0% among all variants. Case IDs following this variant: Case 58. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

15

Metadata: {'score': 0.011157205328345299, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Final Inspection Q.C. → Laser Marking - Machine 7 → Packing', 'hybrid_score': 0.988735821544601, 'rerank score': 0.011157205328345299, 'original score': 0.988735821544601, 'final score': 0.011157205328345299, 'original score': 0.988735821544601, 'final score': 0.011157205328345299, 'delta score': 0.988735821544601, 'final score': 0.988735821544601, 'fina

Chunk 2: Process variant 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turn

Metadata: {'score': 0.0002686833613552153, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 8 → Turning & Milling - Machine 8 → Turning

Plug

Activity-based questions

1 Chunk 1: Grinding Rework - Machine 12 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 18. Grinding Rework - Machine 12 is preceded by: Laser Marking - Machine 7 (1 times). Grinding Rework - Machine 12 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 122.

Metadata: {'score': 0.9844146966934204, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Grinding Rework - Machine 12', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9474070377066658, 'rerank_score': 0.9844146966934204, 'original_score': 0.9474070377066658, 'final_score': 0.9844146966934204}

Chunk 2: Round Grinding - Machine 23 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 18. Round Grinding - Machine 23 is preceded by: Lapping - Machine 1 (1 times). Round Grinding - Machine 23 is followed by: Round Grinding - Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 24.

Metadata: {'score': 0.9798658490180969, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Round Grinding - Machine 23', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9665152588133755, 'rerank_score': 0.9798658490180969, 'original_score': 0.9665152588133755, 'final_score': 0.9798658490180969)

Chunk 3: Turning & Milling - Machine 5 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 18 times. Total number of activities: 18. Turning & Milling - Machine 5 is a starting activity that begins the workflow (4 cases start here). Turning & Milling - Machine 5 is preceded by: Turning Q.C. (3 times), Turning & Milling - Machine 5 (9 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (5 times), Laser Marking - Machine 7 (1 times). This activity appears in 5 cases. Case IDs linked to this activity: Case 121, Case 122, Case 23, Case 24, Case 25. This activity has rework cases. Turning & Milling - Machine 5 has a self-loop, directly followed by itself 9 times (rank 1/10 activities with rework within itself).

Metadata: {'score': 0.9362955689430237, 'end_count': None, 'start_count': 4, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9669091873153257, 'rerank_score': 0.9362955689430237, 'original_score': 0.9669091873153257, 'final_score': 0.9362955689430237, 'original_score': 0.9362955689430237, 'original_score': 0.936295689430237, 'original_score': 0.9362956894894, 'original_score': 0.9362956894894, 'original_score': 0.9362956894, 'original_score': 0.9362956894, 'original_score': 0.9362956894, 'original_score': 0.9362956894, 'original_score': 0.9362956894, 'original_score': 0.9362956894, 'original_sco

Chunk 4: Deburring - Manual is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Deburring - Manual is preceded by: Laser Marking - Machine 7 (2 times). Deburring - Manual is followed by: Flat Grinding - Machine 11 (2 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 122.

Metadata: {'score': 0.29787740111351013, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Deburring - Manual', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5548463158378683, 'rerank_score': 0.29787740111351013, 'original_score': 0.5548463158378683, 'final_score': 0.29787740111351013}

Chunk 5: Packing is an activity in this workflow. This activity executed 3 times. Total number of activities: 18. Packing is an ending activity that concludes the workflow (3 cases end here). Packing is preceded by: Final Inspection O.C. (3 times). This activity appears in 3 cases. Case IDs linked to this activity: Case 122. Case 24. Case 26.

Metadata: (score': 0.22553974390029907, 'end_count': 3, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 0.7232987978923704, 'final_score': 0.22553974390029907, 'original_score': 0.7232987978923704, 'final_score': 0.22553974390029907)

2 Chunk 1: Deburring - Manual is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Deburring - Manual is preceded by: Laser Marking - Machine 7 (2 times). Deburring - Manual is followed by: Flat Grinding - Machine 11 (2 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 122.

Metadata: {'score': 0.42867276072502136, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Deburring - Manual', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5651935302449587, 'rerank_score': 0.42867276072502136, 'original_score': 0.5651935302449587, 'final_score': 0.42867276072502136}

Chunk 2: Flat Grinding - Machine 11 is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Flat Grinding - Machine 11 is preceded by: Deburring - Manual (2 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 122.

Metadata: {'score': 0.3449653387069702, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Flat Grinding - Machine 11', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.5780881227107542, 'rerank_score': 0.3449653387069702, 'original_score': 0.5780881227107542, 'final_score': 0.3449653387069702}

Chunk 3: Turning - Machine 5 is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Turning - Machine 5 is a starting activity that begins the workflow (1 cases start here). Turning - Machine 5 is preceded by: Turning - Machine 5 (1 times), Turning - Machine 5 (1 times), Turning - Machine 5 (1 times), Turning - Machine 5 (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 23. This activity has rework cases. Turning - Machine 5 has a self-loop, directly followed by itself 1 times (rank 10/10 activities with rework within itself).

Metadata: {'score': 0.284225732088089, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.923429921008476, 'ferank_score': 0.284225732088089, 'original_score': 0.923429921008476, 'final_score': 0.284225732088089}

Chunk 4: Round Grinding - Machine 23 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 18. Round Grinding - Machine 23 is preceded by: Lapping - Machine 1 (1 times). Round Grinding - Machine 23 is followed by: Round Grinding - Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 24.

Metadata: {'score': 0.26629140973091125, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Round Grinding - Machine 23', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9411740707227896, 'rerank_score': 0.26629140973091125, 'original_score': 0.9411740707227896, 'final_score': 0.26629140973091125}

Chunk 5: Turning & Milling - Machine 4 is an activity in this workflow. This activity executed 9 times. Total number of activities: 18. Turning & Milling - Machine 4 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 4 is preceded by: Turning & Milling - Machine 5 (1 times), Turning & Milling - Machine 4 (7 times), Turning & Milling - Machine 4 is followed by: Turning & Milling - Machine 4 (7 times), Turning & Milling - Machine 4 (7 times), Turning & Milling - Machine 4 is followed by: Turning & Milling - Machine 4 is a self-loop, directly followed by itself 7 times (rank 2/10 activities with rework within itself).

Metadata: {'score': 0.24458149075508118, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 4', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.893869899178088, 'rerank_score': 0.24458149075508118, 'original_score': 0.893869899178088, 'final_score': 0.24458149075508118}

3 Chunk 1: Packing is an activity in this workflow. This activity executed 3 times. Total number of activities: 18. Packing is an ending activity that concludes the workflow (3 cases end here). Packing is preceded by: Final Inspection Q.C. (3 times). This activity appears in 3 cases. Case IDs linked to this activity: Case 122, Case 24, Case 26.

Metadata: (score': 0.2985002100467682, 'end_count': 3, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Packing', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 1.0, 'rerank_score': 0.2985002100467682, 'original_score': 1.0, 'final_score': 0.2985002100467682}

Chunk 2: Turning - Machine 5 is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Turning - Machine 5 is a starting activity that begins the workflow (1 cases start here). Turning - Machine 5 is preceded by: Turning - Machine 5 (1 times), Turning - Machine 5 has a self-loop, directly followed by itself 1 times (rank 10/10 activities with rework within itself).

Metadata: {'score': 0.06745244562625885, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9182321400834663, 'rerank_score': 0.06745244562625885, 'original_score': 0.9182321400834663, 'final_score': 0.06745244562625885, 'driginal_score': 0.9182321400834663, 'final_score': 0.06745244562625885, 'driginal_score': 0.9182321400834663, 'final_score': 0.918232140083466

Chunk 3: Turning & Milling - Machine 4 is an activity in this workflow. This activity executed 9 times. Total number of activities: 18. Turning & Milling - Machine 4 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 4 is preceded by: Turning & Milling - Machine 5 (1 times), Turning & Milling - Machine 4 (7 times). Turning & Milling - Machine 4 is followed by: Turning & Milling - Machine 4 (7 times), Turning & Milling - Machine 4 (8 time

Metadata: {'score': 0.0331551656126976, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 4', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.8824781944794673, 'rerank_score': 0.0331551656126976, 'original_score': 0.8824781944794673, 'final_score': 0.0331551656126976)

Chunk 4: Turning & Milling - Machine 5 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 18 times. Total number of activities: 18. Turning & Milling - Machine 5 is a starting activity that begins the workflow (4 cases start here). Turning & Milling - Machine 5 is preceded by: Turning Q.C. (3 times), Turning & Milling - Machine 5 (9 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 is followed by: Turning & Milling - Ma

Metadata: ('score': 0.03246882185339928, 'end_count': None, 'start_count': 4, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.8824979377783804, 'rerank_score': 0.03246882185339928, 'original_score': 0.8824979377783804, 'final_score': 0.882497937783804, 'final_score': 0.882497937783804, 'final_score': 0.882497937783804, 'final_score': 0.8824979377783804, 'final_score

Chunk 5: Final Inspection Q.C. is an activity in this workflow. This activity executed 11 times. Total number of activities: 18. Final Inspection Q.C. is an ending activity that concludes the workflow (2 cases end here). Final Inspection Q.C. is preceded by: Round Grinding - Machine 2 (1 times), Final Inspection Q.C. (5 times), Grinding Rework - Machine 12 (1 times), Round Grinding - Machine 3 (4 times). Final Inspection Q.C. is followed by: Final Inspection Q.C. (5 times), Laser Marking - Machine 7 (1 times), Packing (3 times). This activity appears in 5 cases. Case IDs linked to this activity: Case 122, Case 23, Case 24, Case 25, Case 26. This activity has rework cases. Final Inspection Q.C. has a self-loop, directly followed by itself 5 times (rank 5/10 activities with rework within itself).

Metadata: {'score': 0.02965216152369976, 'end_count': 2, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Final Inspection Q.C.', 'type': 'activity_chunk', 'is_end': True, 'hybrid_score': 0.847773291486023, 'rerank_score': 0.02965216152369976, 'original_score': 0.847773291486023, 'final_score': 0.02965216152369976}

Chunk 1: Turning & Milling - Machine 5 is an activity in this workflow. This activity has the highest/most frequency or execution count among all activities. This activity executed 18 times. Total number of activities: 18. Turning & Milling - Machine 5 is a starting activity that begins the workflow (4 cases start here). Turning & Milling - Machine 5 is preceded by: Turning Q.C. (2 times), Turning & Milling - Machine 5 (9 times), Turning & Milling - Machine 5 is followed by: Turning Q.C. (2 times), Turning & Milling - Machine 5 (9 times), Turning & Milling Q.C. (5 times), Laser Marking - Machine 7 (1 times). This activity appears in 5 cases. Case IDs linked to this activity: Case 121, Case 122, Case 23, Case 24, Case 25. This activity has rework cases. Turning & Milling - Machine 5 has a self-loop, directly followed by itself 9 times (rank 1/10 activities with rework within itself).

Metadata: {'score': 0.9995114803314209, 'end_count': None, 'start_count': 4, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning & Milling - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 1.0, 'rerank_score': 0.9995114803314209, 'original_score': 1.0, 'final_score': 0.9995114803314209}

Chunk 2: Turning - Machine 5 is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Turning - Machine 5 is a starting activity that begins the workflow (1 cases start here). Turning - Machine 5 is preceded by: Turning - Machine 5 (1 times), Turning - Machine 5 (1 times), Turning - Machine 5 (1 times), Turning - Machine 5 (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 23. This activity has rework cases. Turning - Machine 5 has a self-loop, directly followed by itself 1 times (rank 10/10 activities with rework within itself).

Metadata: {'score': 0.99921715259552, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.7978497140791766, 'rerank_score': 0.99921715259552, 'original_score': 0.7978497140791766, 'final_score': 0.99921715259552}

Chunk 3: Turning Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 18. Turning Q.C. is preceded by: Turning & Milling - Machine 5 (2 times), Turning & Milling Q.C. (1 times). Turning Q.C. is followed by: Turning & Milling - Machine 5 (3 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 23. This activity has rework cases.

Metadata: {'score': 0.9989339709281921, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.7199599406181411, 'rerank_score': 0.9989339709281921, 'original_score': 0.7199599406181411, 'final_score': 0.9989339709281921}

Chunk 4: Turning & Milling Q.C. is an activity in this workflow. This activity executed 7 times. Total number of activities: 18. Turning & Milling Q.C. is preceded by: Turning & Milling - Machine 4 (2 times), Turning & Milling - Machine 5 (5 times). Turning & Milling - Machine 5 (5 times), Turning & Milling - Machine 5 (1 times), Turning Q.C. (1 times). This activity appears in 6 cases. Case IDs linked to this activity: Case 121, Case 122, Case 23, Case 24, Case 25, Case 26. This activity has rework cases.

Metadata: {'score': 0.9989323019981384, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning & Milling Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.8842484393188016, 'rerank_score': 0.9989323019981384, 'original_score': 0.8842484393188016, 'final_score': 0.9989323019981384}

Chunk 5: Turning & Milling - Machine 4 is an activity in this workflow. This activity executed 9 times. Total number of activities: 18. Turning & Milling - Machine 4 is a starting activity that begins the workflow (1 cases start here). Turning & Milling - Machine 4 is preceded by: Turning & Milling - Machine 5 (1 times), Turning & Milling - Machine 4 (7 times). Turning & Milling - Machine 4 is followed by: Turning & Milling - Machine 4 (7 times), Turning & Milling Q.C. (2 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 26. This activity has rework cases. Turning & Milling - Machine 4 has a self-loop, directly followed by itself 7 times (rank 2/10 activities with rework within itself).

Metadata: {'score': 0.9987661838531494, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': Turning & Milling - Machine 4', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9755098693986384, 'rerank_score': 0.9987661838531494, 'original_score': 0.9755098693986384, 'final_score': 0.9987661838531494, 'original_score': 0.9755098693986384, 'final_score': 0.9987661838531494, 'original_score': 0.998766183851494, 'original_score': 0.998766183864, 'original_score': 0.998766183864, 'original_score': 0.998766183864, 'original_score': 0.99

Chunk 1: Grinding Rework - Machine 12 is an activity in this workflow. This activity has the lowest/least frequency or execution count among all activities. This activity executed 1 times. Total number of activities: 18. Grinding Rework - Machine 12 is preceded by: Laser Marking - Machine 7 (1 times). Grinding Rework - Machine 12 is followed by: Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 122.

Metadata: {'score': 0.9497537612915039, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Grinding Rework - Machine 12', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9892092795438014, 'rerank_score': 0.9497537612915039, 'original_score': 0.9892092795438014, 'final_score': 0.9497537612915039}

Chunk 2: Round Grinding - Machine 2 is an activity in this workflow. This activity executed 5 times. Total number of activities: 18. Round Grinding - Machine 2 is preceded by: Lapping - Machine 1 (2 times), Round Grinding - Machine 2 (3 times), Round Grinding - Q.C. (1 times), Final Inspection Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 122. This activity has rework cases. Round Grinding - Machine 2 has a self-loop, directly followed by itself 3 times (rank 8/10 activities with rework within itself).

Metadata: {'score': 0.8536080718040466, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Round Grinding - Machine 2', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9614007568851792, 'rerank_score': 0.8536080718040466, 'original_score': 0.9614007568851792, 'final_score': 0.8536080718040466}

Chunk 3: Turning Q.C. is an activity in this workflow. This activity executed 3 times. Total number of activities: 18. Turning Q.C. is preceded by: Turning & Milling - Machine 5 (3 times), Turning & Milling Q.C. (1 times). Turning Q.C. is followed by: Turning & Milling - Machine 5 (3 times). This activity appears in 2 cases. Case IDs linked to this activity: Case 121, Case 23. This activity has rework cases.

Metadata: {'score': 0.7993951439857483, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Turning Q.C.', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.936947000859335, 'final_score': 0.7993951439857483, 'original_score': 0.936947000859335, 'final_score': 0.7993951439857483

Chunk 4: Round Grinding - Manual is an activity in this workflow. This activity executed 6 times. Total number of activities: 18. Round Grinding - Manual is preceded by: Lapping - Machine 1 (1 times), Round Grinding - Manual (5 times). Round Grinding - Q.C. (1 times). This activity appears in 1 cases. Case IDs linked to this activity: Case 25. This activity has rework cases. Round Grinding - Manual has a self-loop, directly followed by itself 5 times (rank 6/10 activities with rework within itself).

Metadata: {'score': 0.7983257174491882, 'end_count': None, 'start_count': None, 'source': 'activity_based_chunking', 'is_start': None, 'activity_name': 'Round Grinding - Manual', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.9566397779113421, 'rerank_score': 0.7983257174491882, 'original_score': 0.9566397779113421, 'final_score': 0.956639779113421, 'final_score': 0.95

Chunk 5: Turning - Machine 5 is an activity in this workflow. This activity executed 2 times. Total number of activities: 18. Turning - Machine 5 is a starting activity that begins the workflow (1 cases start here). Turning - Machine 5 is preceded by: Turning - Machine 5 (1 times), This activity appears in 1 cases. Case IDs linked to this activity: Case 23. This activity has rework cases. Turning - Machine 5 has a self-loop, directly followed by itself 1 times (rank 10/10 activities with rework within itself).

Metadata: {'score': 0.7481601238250732, 'end_count': None, 'start_count': 1, 'source': 'activity_based_chunking', 'is_start': True, 'activity_name': 'Turning - Machine 5', 'type': 'activity_chunk', 'is_end': None, 'hybrid_score': 0.947234352769438, 'ferank_score': 0.7481601238250732, 'original_score': 0.947234352769438, 'final_score': 0.947234352769438, 'final_s

Process-based questions

6 Chunk 1: Process 'Round Grinding - Q.C. → Round Grinding - Machine 3' is a transition that occurs 1 times. This transition takes on average 27 days 1 hrs 24 mins to complete. (min: 27 days 1 hrs 24 mins, max: 27 days 1 hrs 24 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.9897786974906921, 'rank': 40, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Q.C. → Round Grinding - Machine 3', 'frequency': 1, 'type': 'process chunk', 'hybrid score': 0.9832859461983796, 'rerank score': 0.9897786974906921, 'original score': 0.9832859461983796, 'final score': 0.9897786974906921}

Chunk 2: Process 'Turning & Milling - Machine 5 \rightarrow Turning & Milling - Machine 5' is a transition that occurs 9 times. This transition takes on average 19 hrs 24 mins to complete. (min: 1 hrs 42 mins, max: 5 days 1 hrs 28 mins). It has a self-loop pattern, directly followed by itself 9 times (rank 1/10 self-loop transitions). This transition has the highest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.9826632738113403, 'rank': 1, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5', 'frequency': 9, 'type': 'process_chunk', 'hybrid_score': 0.7476783318918518, 'rerank_score': 0.9826632738113403, 'original_score': 0.7476783318918518, 'final_score': 0.9826632738113403

Chunk 3: Process 'Turning & Milling Q.C. \rightarrow Turning Q.C. 'is a transition that occurs 1 times. This transition takes on average 26 mins to complete. (min: 26 mins, max: 26 mins). This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.9792283773422241, 'rank': 36, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling Q.C. → Turning Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.645296312983194, 'rerank_score': 0.9792283773422241, 'original_score': 0.645296312983194, 'final_score': 0.9792283773422241}

Chunk 4: Process 'Turning - Machine 5 → Turning & Milling - Machine 5' is a transition that occurs 1 times. This transition takes on average 5 hrs 57 mins to complete. (min: 5 hrs 57 mins, max: 5 hrs 57 mins). This transition has the lowest frequency or execution count out of 43 transitions.

 $Metadata: \{'score': 0.9750619530677795, 'rank': 35, 'source': 'process_based_chunking', 'path_string': 'Turning - Machine 5 \rightarrow Turning \& Milling - Machine 5', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6519970016040274, 'rerank_score': 0.9750619530677795, 'original_score': 0.6519970016040274, 'final_score': 0.9750619530677795\}$

Chunk 5: Process 'Turning & Milling - Machine 5 \rightarrow Laser Marking - Machine 7' is a transition that occurs 1 times. This transition takes on average 16 hrs 8 mins to complete. (min: 16 hrs 8 mins, max: 16 hrs 8 mins). This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.9718472957611084, 'rank': 37, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 5 → Laser Marking - Machine 7', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6351968273930796, 'freank_score': 0.9718472957611084, 'original_score': 0.6351968273930796, 'final_score': 0.9718472957611084}

Chunk 1: Process 'Round Grinding - Q.C. → Round Grinding - Machine 3' is a transition that occurs 1 times. This transition takes on average 27 days 1 hrs 24 mins to complete. (min: 27 days 1 hrs 24 mins, max: 27 days 1 hrs 24 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.5457925200462341, 'rank': 40, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Q.C. → Round Grinding - Machine 3', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9588215867112395, 'rerank_score': 0.5457925200462341, 'original_score': 0.9588215867112395, 'final_score': 0.5457925200462341}

Chunk 2: Process 'Turning & Milling Q.C. → Turning Q.C. is a transition that occurs 1 times. This transition takes on average 26 mins to complete. (min: 26 mins, max: 26 mins). This transition has the lowest frequency or execution count out of 43 transitions.

 $Metadata: \{'score': 8.722208440303802e-05, 'rank': 36, 'source': 'process_based_chunking', 'path_string': 'Turning \& Milling Q.C. \rightarrow Turning Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.7138400458890265, 'rank'_score': 8.722208440303802e-05, 'original_score': 0.7138400458890265, 'final_score': 8.722208440303802e-05\}$

Chunk 3: Process 'Turning & Milling Q.C. → Turning & Milling - Machine 5' is a transition that occurs 1 times. This transition takes on average 1 hrs 6 mins to complete. (min: 1 hrs 6 mins, max: 1 hrs 6 mins). This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 7.581816316815093e-05, 'rank': 28, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling Q.C. → Turning & Milling - Machine 5', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.702344278290164, 'freank_score': 7.581816316815093e-05, 'original_score': 0.702344278290164, 'final_score': 7.581816316815093e-05}

Chunk 4: Process 'Final Inspection Q.C. → Packing' is a transition that occurs 3 times. This transition takes on average 12 hrs 50 mins 40 secs to complete. (min: 8 hrs 53 mins, max: 15 hrs 39 mins).

Metadata: {'score': 7.151483441703022e-05, 'rank': 17, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Packing', 'frequency': 3, 'type': 'process_chunk', 'hybrid_score': 0.6, 'rerank_score': 7.151483441703022e-05, 'original_score': 0.6, 'final_score': 7.151483441703022e-05}

Chunk 5: Process 'Round Grinding - Machine 3 → Final Inspection Q.C.' is a transition that occurs 4 times. This transition takes on average 3 days 0 hrs 40 mins 45 secs to complete. (min: 2 days 7 hrs 14 mins, max: 3 days 17 hrs 10 mins).

Metadata: {'score': 6.243107054615393e-05, 'rank': 13, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Machine 3 → Final Inspection Q.C.', 'frequency': 4, 'type': 'process_chunk', 'hybrid_score': 0.5686169207489158, 'rerank_score': 6.243107054615393e-05, 'original_score': 0.5686169207489158, 'final_score': 6.243107054615393e-05}

8 Chunk 1: Process 'Turning - Machine 5 → Turning - Machine 5' is a transition that occurs 1 times. This transition takes on average 9 hrs 41 mins to complete. (min: 9 hrs 41 mins, max: 9 hrs 41 mins). It has a self-loop pattern, directly followed by itself 1 times (rank 10/10 self-loop transitions). This transition has the lowest frequency or execution count out of 43 transitions.

 $\label{eq:metadata: ('score': 0.016443055123090744, 'rank': 34, 'source': 'process_based_chunking', 'path_string': 'Turning - Machine 5 \rightarrow Turning - Machine 5', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.594391781193619, 'rerank_score': 0.016443055123090744, 'original_score': 0.594391781193619, 'final_score': 0.016443055123090744}$

Chunk 2: Process 'Round Grinding - Machine 2 → Round Grinding - Machine 2' is a transition that occurs 3 times. This transition takes on average 3 hrs 18 mins to complete. (min: 2 hrs 9 mins, max: 4 hrs 0 mins). It has a self-loop pattern, directly followed by itself 3 times (rank 8/10 self-loop transitions).

Metadata: {'score': 0.014000315219163895, 'rank': 15, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Machine 2 → Round Grinding - Machine 2', 'frequency': 3, 'type': 'process_chunk', 'hybrid_score': 0.5951011179750066, 'rerank_score': 0.014000315219163895, 'original_score': 0.5951011179750066, 'final_score': 0.014000315219163895}

Chunk 3: Process 'Round Grinding - Machine 3 → Round Grinding - Machine 3' is a transition that occurs 6 times. This transition takes on average 2 hrs 50 mins 30 secs to complete. (min: 30 mins, max: 6 hrs 23 mins). It has a self-loop pattern, directly followed by itself 6 times (rank 3/10 self-loop transitions).

Metadata: {'score': 0.01348937675356865, 'rank': 4, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Machine 3 → Round Grinding - Machine 3', 'frequency': 6, 'type': 'process_chunk', 'hybrid_score': 0.5889557218473672, 'rerank_score': 0.01348937675356865, 'original_score': 0.5889557218473672, 'final_score': 0.01348937675356865}

Chunk 4: Process 'Final Inspection Q.C. → Final Inspection Q.C.' is a transition that occurs 5 times. This transition takes on average 23 hrs 58 mins 24 secs to complete. (min: 2 hrs 27 mins, max: 1 days 19 hrs 49 mins). It has a self-loop pattern, directly followed by itself 5 times (rank 5/10 self-loop transitions).

Metadata: {'score': 0.012461941689252853, 'rank': 9, 'source': 'process_based_chunking', 'path_string': 'Final Inspection Q.C. → Final Inspection Q.C.', 'frequency': 5, 'type': 'process_chunk', 'hybrid_score': 0.5854820813183103, 'final_score': 0.012461941689252853, 'original_score': 0.5854820813183103, 'final_score': 0.012461941689252853}

Chunk 5: Process 'Lapping - Machine 1 → Lapping - Machine 1' is a transition that occurs 5 times. This transition takes on average 3 hrs 42 mins to complete. (min: 6 mins, max: 8 hrs 55 mins). It has a self-loop pattern, directly followed by itself 5 times (rank 4/10 self-loop transitions).

Metadata: {'score': 0.010776584036648273, 'rank': 8, 'source': 'process_based_chunking', 'path_string': 'Lapping - Machine $1 \rightarrow$ Lapping - Machine 1', 'frequency': 5, 'type': 'process_chunk', 'hybrid_score': 0.6, 'rerank_score': 0.010776584036648273, 'original_score': 0.6, 'final_score': 0.010776584036648273}

9 Chunk 1: Process 'Round Grinding - Q.C. — Round Grinding - Machine 3' is a transition that occurs 1 times. This transition takes on average 27 days 1 hrs 24 mins, max: 27 days 1 hrs 24 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.007995259948074818, 'rank': 40, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Q.C. → Round Grinding - Machine 3', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9982337390020829, 'rerank_score': 0.007995259948074818, 'original_score': 0.9982337390020829, 'frinal_score': 0.007995259948074818}

Chunk 2: Process 'Lapping - Machine 1 Round Grinding - Manual' is a transition that occurs 1 times. This transition takes on average 16 mins to complete. (min: 16 mins, max: 16 mins). This is the fastest/shortest/quickest/lowest transition in terms of execution time. This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.0023693442344665527, 'rank': 42, 'source': 'process_based_chunking', 'path_string': 'Lapping - Machine 1 → Round Grinding - Manual', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.9747967813012579, 'rerank_score': 0.0023693442344665527, 'original_score': 0.9747967813012579, 'final_score': 0.0023693442344665527}

Chunk 3: Process 'Laser Marking - Machine 7 → Deburring - Manual' is a transition that occurs 2 times. This transition takes on average 23 hrs 14 mins to complete. (min: 1 hrs 50 mins. max: 1 days 20 hrs 38 mins).

Metadata: ('score': 0.0005163089372217655, 'rank': 20, 'source': 'process_based_chunking', 'path_string': 'Laser Marking - Marchine 7 → Deburring - Manual', 'frequency': 2, 'type': 'process_chunk', 'hybrid_score': 0.5873008651794736, 'final_score': 0.0005163089372217655}

Chunk 4: Process 'Turning & Milling - Machine 5 — Turning & Milling - Machine 4' is a transition that occurs 1 times. This transition takes on average 8 days 2 hrs 11 mins to complete. (min: 8 days 2 hrs 11 mins, max: 8 days 2 hrs 11 mins). This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.0005096321110613644, 'rank': 26, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 4', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.5954645518871223, 'rerank_score': 0.0005096321110613644, 'original_score': 0.5954645518871223, 'final_score': 0.0005096321110613644}

Chunk 5: Process 'Turning & Milling - Machine 5 \rightarrow Turning & Milling - Machine 5' is a transition that occurs 9 times. This transition takes on average 19 hrs 24 mins to complete. (min: 1 hrs 42 mins, max: 5 days 1 hrs 28 mins). It has a self-loop pattern, directly followed by itself 9 times (rank 1/10 self-loop transitions). This transition has the highest frequency or execution count out of 43 transitions.

 $Metadata: \{'score': 0.0004977466887794435, 'rank': 1, 'source': 'process_based_chunking', 'path_string': 'Turning \& Milling - Machine 5 \rightarrow Turning \& Milling - Machine 5', 'frequency': 9, 'type': 'process_chunk', 'hybrid_score': 0.5910010410928611, 'rerank_score': 0.0004977466887794435, 'original_score': 0.5910010410928611, 'final_score': 0.0004977466887794435\}$

10 Chunk 1: Process 'Round Grinding - Q.C. → Round Grinding - Machine 3' is a transition that occurs 1 times. This transition takes on average 27 days 1 hrs 24 mins to complete. (min: 27 days 1 hrs 24 mins, max: 27 days 1 hrs 24 mins). This is the slowest/longest/highest transition in terms of execution time. This transition is the bottleneck due to its long average execution time. This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.9628495573997498, 'rank': 40, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Q.C. → Round Grinding - Machine 3', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.981396563772562, 'rerank_score': 0.9628495573997498, 'original_score': 0.981396563772562, 'final_score': 0.9628495573997498}

Chunk 2: Process 'Turning & Milling Q.C. → Turning Q.C.' is a transition that occurs 1 times. This transition takes on average 26 mins to complete. (min: 26 mins, max: 26 mins). This transition has the lowest frequency or execution count out of 43 transitions.

 $Metadata: \{'score': 0.9320923089981079, 'rank': 36, 'source': 'process_based_chunking', 'path_string': 'Turning \& Milling Q.C. \rightarrow Turning Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.7095492322743506, 'rerank_score': 0.9320923089981079, 'original_score': 0.7095492322743506, 'final_score': 0.9320923089981079\}$

Chunk 3: Process 'Turning - Machine 5 → Turning & Milling - Machine 5' is a transition that occurs 1 times. This transition takes on average 5 hrs 57 mins to complete. (min: 5 hrs 57 mins, max: 5 hrs 57 mins). This transition has the lowest frequency or execution count out of 43 transitions.

 $Metadata: \{'score': 0.886105477809906, 'rank': 35, 'source': 'process_based_chunking', 'path_string': 'Turning - Machine 5 \rightarrow Turning \& Milling - Machine 5', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.7094356697770619, 'rerank_score': 0.886105477809906, 'original_score': 0.7094356697770619, 'final_score': 0.886105477809906\}$

Chunk 4: Process 'Round Grinding - Machine 2 — Round Grinding - Q.C.' is a transition that occurs 1 times. This transition takes on average 5 days 10 hrs 29 mins to complete. (min: 5 days 10 hrs 29 mins, max: 5 days 10 hrs 29 mins). This transition has the lowest frequency or execution count out of 43 transitions.

 $\label{eq:metadata: special} Metadata: \{'score': 0.8731175661087036, 'rank': 29, 'source': 'process_based_chunking', 'path_string': 'Round Grinding - Machine 2 \rightarrow Round Grinding - Q.C.', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.5797175857847265, 'rerank_score': 0.8731175661087036, 'original_score': 0.5797175857847265, 'final_score': 0.8731175661087036\}$

Chunk 5: Process 'Turning & Milling - Machine 5 — Laser Marking - Machine 7' is a transition that occurs 1 times. This transition takes on average 16 hrs 8 mins to complete. (min: 16 hrs 8 mins, max: 16 hrs 8 mins). This transition has the lowest frequency or execution count out of 43 transitions.

Metadata: {'score': 0.8719276189804077, 'rank': 37, 'source': 'process_based_chunking', 'path_string': 'Turning & Milling - Machine 5 → Laser Marking - Machine 7', 'frequency': 1, 'type': 'process_chunk', 'hybrid_score': 0.6973111703132765, 'rerank_score': 0.8719276189804077, 'original_score': 0.6973111703132765, 'final_score': 0.8719276189804077}

Variant-based questions

Chunk 1: Process variant 'Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Deburring - Manual → Flat Grinding - Machine 11 → Lapping - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 5 → Round Grinding - Mac

Metadata: {'score': 0.8005719780921936, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 1 → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Round Grind

Chunk 2: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 2. → Lapping - Machine 7 → Lapping - Machine 1 → Round Grinding - Machine 3 → Lapping - Machine 1 → L

 $\label{eq:metadata: special contents} \begin{tabular}{ll} Metadata: special contents for the contents of the$

Chunk 3: Process variant 'Turning & Milling - Machine $4 \rightarrow$ Turning & Milling - Machine $1 \rightarrow$ Round Grinding -

Machine 3 → Final Inspection Q.C. → Final Inspection

 $\label{eq:metadata: ('score': 0.7483955025672913, 'rank': 6, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine <math>4 \rightarrow Turning \& Milling - Machine 4 \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 12 \rightarrow Round Grinding - Machine 13 \rightarrow Round Grinding - Machine 14 \rightarrow Round Grinding - Machine 15 \rightarrow Round Grinding - Machine 15 \rightarrow Round Grinding - Machine 16 \rightarrow Round Grinding - Machine 17 \rightarrow Round Grinding - Machine 18 \rightarrow Round Grinding - Machine 19 \rightarrow Round Grinding - Machine 10 \rightarrow Round Grind$

Chunk 4: Process variant 'Turning - Machine 5 → Turning - Machine 5 → Turning & Milling - Machine 12 → Round Grinding - Machine 13 → Round Grinding - Machine 14 → Round Grinding - Machine 15 → Final Inspection Q.C. This variant consists of 16 activities and takes on average 1 months 6 days 21 hrs 8 mins to complete. (min: 1 months 6 days 21 hrs 8 mins, max: 1 months 6 days 21 hrs 8 mins). This variant tarts with Turning - Machine 5, ends with Final Inspection Q.C.. This variant represents 16.7% among all variants. Case IDs following this variant: Case 23. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Turning - Machine 5.

Metadata: {'score': 0.6138678789138794, 'rank': 3, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning - Machine 5 → Turning - Machine 5 → Turning & Milling - Machine 1 → Round Grinding - Machine 1 → Round Grinding - Machine 12 → Round Grinding - Machine 12 → Round Grinding - Machine 1 → Round Grinding - Machine 1

Chunk 5: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Final Inspection Q.C. 'represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 24 activities and takes on average 1 months 10 days 21 hrs 4 mins to complete. (min: 1 months 10 days 21 hrs 4 mins, max: 1 months 10 days 21 hrs 4 mins). This variant starts with Turning & Milling - Machine 5, ends with Final Inspection Q.C.. This variant represents 16.7% among all variants. Case IDs following this variant: Case 25. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual.

Metadata: {'score': 0.5699803829193115, 'rank': 5, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Machine 1 → Round Grinding - Q.C. → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Final Inspection Q.C.', 'hybrid_score': 0.9578996600532912, 'rerank_score': 0.5699803829193115, 'original_score': 0.9578996600532912, 'final_score': 0.5699803829193115}

Chunk 1: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 23 → Round Grinding - Machine 3 → Lapping - Machine 3 → Lapping - Machine 1 → Lapping - Machine 2 → L

Chunk 2: Process variant 'Turning & Milling - Machine 5 → Turning & Milling Q.C. → Laser Marking - Machine 7 → Deburring - Manual → Flat Grinding - Machine 11 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Q.C. → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Final Inspection Q.C. → Final Q.C. →

Metadata: {'score': 1.546063504065387e-05, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 →

Chunk 3: Process variant 'Turning & Milling - Machine 4 → Turning & Milling - Machine 12 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 21 activities and takes on average 1 months 12 days 7 hrs 3 mins to complete. (min: 1 months 12 days 7 hrs 3 mins, max: 1 months 12 days 7 hrs 3 mins). This is the slowest variant. This variant starts with Turning & Milling - Machine 4, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 26. All variants have the same number of execution count.

 $\label{eq:matching} \begin{tabular}{l} Metadata: {'score': 1.3421446965367068e-05, 'rank': 6, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 12 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 3 \rightarrow Round Grinding - Machine 1 \rightarrow R$

Chunk 4: Process variant 'Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Deburring - Manual → Flat Grinding - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Round Grindin

Machine 5, ends with Round Grinding - Machine 3. This variant represents 16.7% among all variants. Case IDs following this variant: Case 121. All variants have the same number of execution count.

Metadata: {'score': 1.3399602721619885e-05, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 3 → Round Grin

Chunk 5: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Final Inspection Q.C.' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 24 activities and takes on average 1 months 10 days 21 hrs 4 mins to complete. (min: 1 months 10 days 21 hrs 4 mins, max: 1 months 10 days 21 hrs 4 mins). This variant starts with Turning & Milling - Machine 5, ends with Final Inspection Q.C.. This variant represents 16.7% among all variants. Case IDs following this variant: Case 25. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Manual

 $\label{eq:metadata: strength} $$ \operatorname{Metadata: strength} : 1.3363832294999156e-05, \ \operatorname{rank': 5, \ 'source': \ 'variant_based_chunking', \ 'frequency': 1, \ 'type': \ 'variant_chunk', \ 'variant_string': \ 'Turning & Milling - Machine 5 \rightarrow Turning & Milli$

Chunk 1: Process variant 'Turning & Milling - Machine 5 → Turning & Milling Q.C. → Laser Marking - Machine 2 → Deburring - Manual → Flat Grinding - Machine 11 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Q.C. → Laser Marking - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Final Inspection Q.C. → Final Inspection Q.C. → Laser Marking - Machine 7 → Grinding Rework - Machine 12 → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 26 activities and takes on average 23 days 12 hrs 3 mins, max: 23 days 12 hrs 3 mins). This is the longest variant. This variant starts with Turning & Milling - Machine 5, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 122. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Machine 2, Grinding Rework - Machine 12.

Metadata: {'score': 0.0006465562619268894, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Q.C. → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round

Chunk 2: Process variant 'Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 1 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 3 \rightarrow Round Gri

Metadata: {'score': 0.00024951735395006835, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning Q.C. → Turning Q.C. → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapsing - Machine 1 → Lapsing - Machine 1 → Lapsing - Machine 1 → Round Grinding - Machine 3 → Ro

Chunk 3: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling Q.C. → Laser Marking - Machine 7 → Lapping - Machine 1 → Round Grinding - Machine 3 → Lapping - Machine 1 → Lapping - Machine 2 → Lap

 $\label{eq:metadata: special control of the contro$

Chunk 4: Process variant 'Turning - Machine 5 → Turning - Machine 5 → Turning & Milling - Machine 12 → Round Grinding - Machine 13 → Final Inspection Q.C.' represents an execution pattern found in 1 cases. Total number of variants:

6. This variant consists of 16 activities and takes on average 1 months 6 days 21 hrs 8 mins to complete. (min: 1 months 6 days 21 hrs 8 mins, max: 1 months 6 days 21 hrs 8 mins). This variant starts with Turning - Machine 5, ends with Final Inspection Q.C.. This variant represents 16.7% among all variants. Case IDs following this variant: Case 23. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Turning - Machine 5.

Metadata: {'score': 0.00016612889885436743, 'rank': 3, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning - Machine 5 → Turning & Milling - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Final Inspection Q.C.', 'hybrid_score': 0.6882661533078267, 'rerank_score': 0.00016612889885436743, 'original_score': 0.6882661533078267, 'frinal_score': 0.00016612889885436743}

Chunk 5: Process variant 'Turning & Milling - Machine 4 → Turning & Milling - Machine 4 → Turning & Milling - Machine 4 → Turning & Milling - Machine 12 → Round Grinding - Machine 13 → Round Grinding - Machine 13 → Round Grinding - Machine 13 → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 21 activities and takes on average 1 months 12 days 7 hrs 3 mins to complete. (min: 1 months 12 days 7 hrs 3 mins, max: 1 months 12 days 7 hrs 3 mins, blus is the slowest variant. This variant starts with Turning & Milling - Machine 4, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 26. All variants have the same number of execution count.

Metadata: {'score': 9.131418482866138e-05, 'rank': 6, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 4 → Turning & Milling - Machine 4 → Turning

- 7 → Lapping Machine 1 → Round Grinding Machine 12 → Round Gri
- 14 Chunk 1: Process variant 'Turning & Milling Machine 5 → Turning & Milling Machine 5 → Turning & Milling Machine 5 → Turning & Milling Machine 1 → Round Grinding Machine 23 → Round Grinding Q.C. → Round Grinding Machine 3 → Lapping Machine 1 → Round Grinding Machine 3 → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 15 activities and takes on average 1 months 12 days 1 hrs 36 mins to complete. (min: 1 months 12 days 1 hrs 36 mins, max: 1 months 12 days 1 hrs 36 mins). This is the shortest variant. This variant starts with Turning & Milling Machine 5, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 24. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding Machine 23.

Metadata: {'score': 0.0005473950295709074, 'rank': 4, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Lapping - Machine 1 → Round Grinding - Machine 23 → Round Grinding - Q.C. → Round Grinding - Machine 3 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 3 → Final Inspection Q.C. → Final Inspection Q.C. → Packing', 'hybrid_score': 1.0, 'rerank_score': 0.0005473950295709074, 'original_score': 1.0, 'final_score': 0.0005473950295709074}

Chunk 2: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Manual → Round Grinding - Machine 1 → Round Grinding -

 $\label{eq:metadata: strong: 2.480660259607248e-05, 'rank': 5, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 \rightarrow Turning & Milling - Machine 1 \rightarrow Lapping - Machine 1 \rightarrow Lapping - Machine 1 \rightarrow Lapping - Machine 1 \rightarrow Round Grinding - Manual \rightarrow Round Grinding - Manual \rightarrow Round Grinding - Manual \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Q.C. \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 3 \rightarrow Round Grinding - Machine 3 \rightarrow Final Inspection Q.C.', 'hybrid_score': 0.6401744061802629, 'rerank_score': 2.480660259607248e-05, 'original score': 2.480660259607248e-05}$

Chunk 3: Process variant 'Turning - Machine $5 \rightarrow$ Turning & Milling - Machine $1 \rightarrow$ Round Grinding - Machine 1

Metadata: {'score': 2.318876067874953e-05, 'rank': 3, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning - Machine 5 → Turning - Machine 5 → Turning & Milling - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 3 → Round Grinding - Machine 1 → Rou

Chunk 4: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling Q.C. → Laser Marking - Machine 7 → Deburring - Manual → Flat Grinding - Machine 11 → Lapping - Machine 1 → Round Grinding - Machine 2 → Final Inspection Q.C. → Final Inspection Q.C. → Laser Marking - Machine 7 → Grinding Rework - Machine 12 → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Laser Marking - Machine 7 → Grinding Rework - Machine 12 → Final Inspection Q.C. → Final Inspec

Metadata: {'score': 2.2923812139197253e-05, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Q.C. → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Mach

Chunk 5: Process variant 'Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 3 \rightarrow Round Grinding - Machine 3 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 3 \rightarrow Round Grinding - Mac

Metadata: {'score': 2.1979716620990075e-05, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning Q.C. → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3 → Round Grinding - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3', 'hybrid_score': 0.6445102546689866, 'rerank_score': 2.1979716620990075e-05, 'original_score': 0.6445102546689866, 'terank_score': 2.1979716620990075e-05}

15 Chunk 1: Process variant 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 7 → Lapping - Machine 7 → Lapping - Machine 1 → Round Grinding - Machine 23 → Round Grinding - Q.C. → Round Grinding - Machine 3 → Lapping - Machine 1 → Round Grinding - Machine 3 → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 15 activities and takes on average 1 months 12 days 1 hrs 36 mins to complete. (min: 1 months 12 days 1 hrs 36 mins, max: 1 months 12 days 1 hrs 36 mins). This is the shortest variant. This variant starts with Turning & Milling - Machine 5, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 24. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Machine 23.

Metadata: {'score': 0.002462939126417041, 'rank': 4, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Turning & Milling - Machine 5 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Machine 3 → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Packing', 'hybrid score': 0.9992628143280662, 'frial score': 0.002462939126417041, 'original score': 0.9992628143280662, 'frial score': 0.002462939126417041, 'driginal score': 0.9992628143280662, 'frial score': 0.9992628143280662, 'fria

Chunk 2: Process variant 'Turning & Milling - Machine 5 → Turning & Milling Q.C. → Laser Marking - Machine 7 → Deburring - Manual → Flat Grinding - Machine 11 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding

- Machine 2 → Round Grinding - Q.C. → Round Grinding - Q.C. → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Final Inspection Q.C. → Final Inspection Q.C. → Laser Marking - Machine 7 → Grinding Rework - Machine 12 → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Final Inspection Q.C. → Packing' represents an execution pattern found in 1 cases. Total number of variants: 6. This variant consists of 26 activities and takes on average 23 days 12 hrs 3 mins to complete. (min: 23 days 12 hrs 3 mins, max: 23 days 12 hrs 3 mins). This is the longest variant. This variant starts with Turning & Milling - Machine 5, ends with Packing. This variant represents 16.7% among all variants. Case IDs following this variant: Case 122. All variants have the same number of execution count. This variant includes unique activities not found in other variants: Round Grinding - Machine 2, Grinding Rework - Machine 12.

Metadata: {'score': 0.00027375429635867476, 'rank': 2, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - Machine 2 → Round Grinding - Q.C. → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 2 → Round Grinding - M

Chunk 3: Process variant 'Turning & Milling - Machine $4 \rightarrow \text{Turning & Milling - Machine } 4 \rightarrow \text{Turning & Milling - Machine } 4 \rightarrow \text{Turning & Milling - Machine } 4 \rightarrow \text{Turning & Milling - Machine } 12 \rightarrow \text{Round Grinding - Machine } 12 \rightarrow \text{Rou$

 $\label{eq:metadata: strong: 5.051602784078568e-05, 'rank': 6, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine <math>4 \rightarrow Turning & Milling - Machine \\ 4 \rightarrow Turning & Milling - Machine \\ 1 \rightarrow Round Grinding - Machine \\ 2 \rightarrow Round Grinding - Machine \\ 3 \rightarrow Final Inspection \\ 0.C. \rightarrow Final Inspection$

Chunk 4: Process variant 'Turning - Machine 5 → Turning - Machine 5 → Turning & Milling - Machine 12 → Round Grinding - Machine 13 → Round Grinding - Machine 14 → Round Grinding - Machine 15 → Round Grinding - Machine 15 → Round Grinding - Machine 16 → Round Grinding - Machine 17 → Round Grinding - Machine 19 → Round Grinding - Machine 10 → Round Grinding - Round Grinding - Machine 10 → Round Grinding - Machine 10 →

Metadata: {'score': 4.13343332184013e-05, 'rank': 3, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning - Machine 5 → Turning & Milling - Machine 1 → Round Grinding - Machine 1

Chunk 5: Process variant 'Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 5 \rightarrow Turning Q.C. \rightarrow Turning & Milling - Machine 4 \rightarrow Turning & Milling - Machine 1 \rightarrow Round Grinding - Machine 1 \rightarrow Round Grinding - Machine 3 \rightarrow Round Gri

Metadata: {'score': 4.057712067151442e-05, 'rank': 1, 'source': 'variant_based_chunking', 'frequency': 1, 'type': 'variant_chunk', 'variant_string': 'Turning & Milling - Machine 5 → Turning Q.C. → Turning & Milling - Machine 5 → Turning & Milling - Machine 4 → Turning & Milling - Machine 1 → Lapping - Machine 1 → Lapping - Machine 1 → Round Grinding - Machine 3 → Round Grinding - Machine 3', 'hybrid_score': 0.6510848907732634, 'freah_score': 4.057712067151442e-05, 'original_score': 0.6510848907732634, 'final_score': 4.057712067151442e-05}