

# Ergonomics Requirement Specification for External Machine Manufacturers

## Our Requirements to New Machines

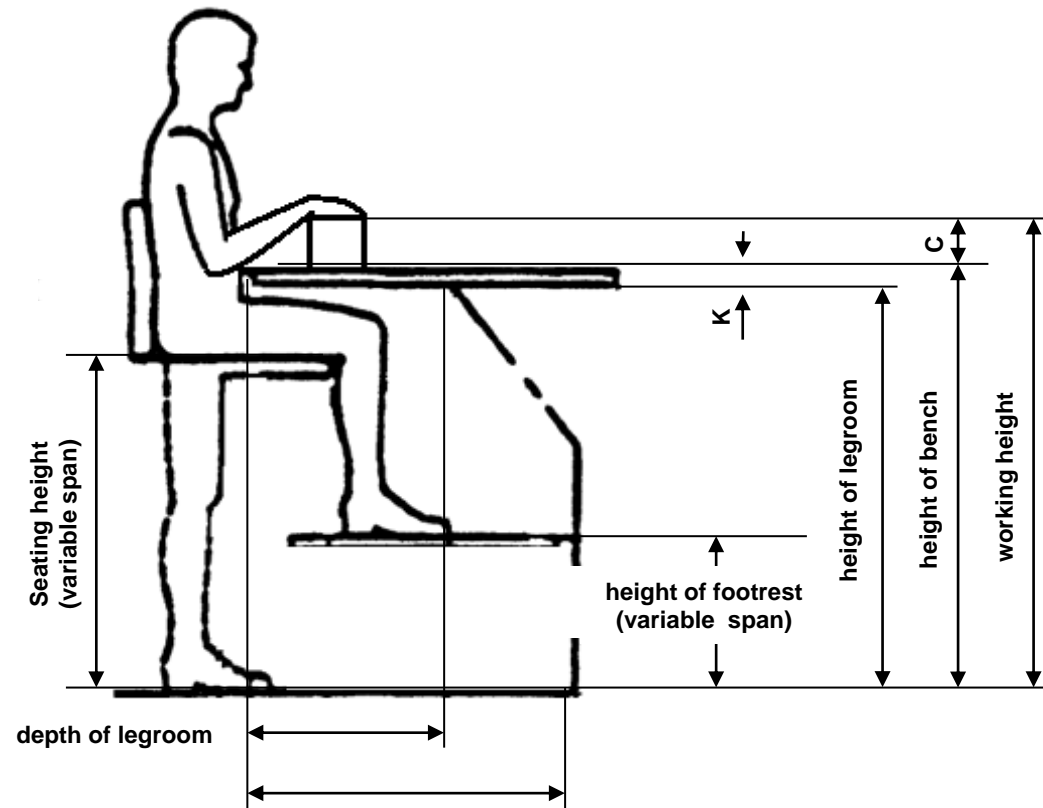
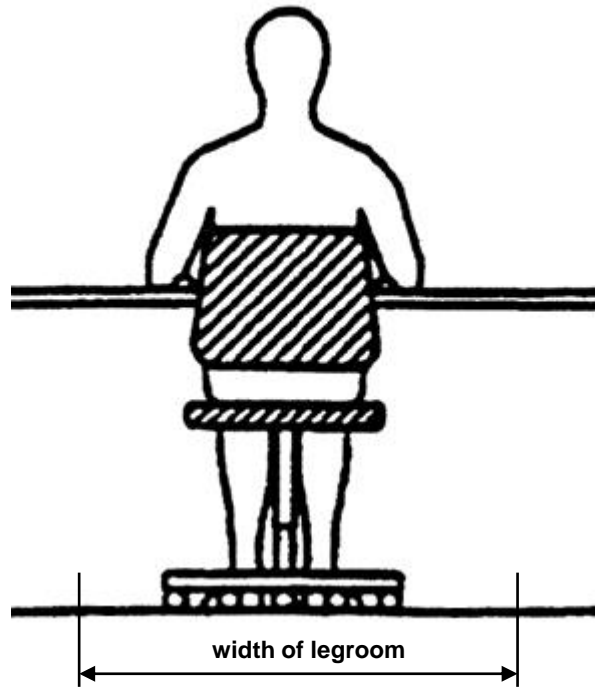
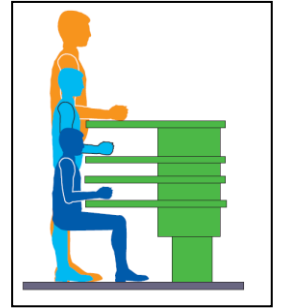
[1a] Workplace for sit-stand position  
*Variable height of bench*

[Ergonomics Requirement Specification for External Machine Manufacturers - Continental AG](#)

# [1a] Workplace for sit-stand position

## Variable height of bench

- › Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [1a] Workplace for sit-stand position

## Variable height of bench

[1a]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	560-1458	600-1440	560-1326	560-1440	553-1368	510-1268	510-1368	588-1434	532-1324	532-1434	559-1352	514-1254	514-1352	564-1350	532-1247	532-1350
Working Height (2)	560-1220	600-1205	560-1110	560-1205	553-1145	510-1062	210-1145	588-1200	532-1108	532-1200	559-1132	514-1050	514-1132	564-1130	532-1044	532-1130
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	519	505	485	505	482	462	482	n.a	n.a	n.a	471	449	471	n.a	n.a	n.a
Depth of Footwell Area	849	840	795	840	802	758	802	n.a	n.a	n.a	791	745	791	n.a	n.a	n.a
Width of Legroom	1038	1010	970	1010	964	924	964	n.a	n.a	n.a	942	898	974	n.a	n.a	n.a
Seating Height	370-535	440-520	405-480	405-520	395-467	363-433	363-467	442-541	392-502	392-541	400-472	370-433	370-472	410-480	385-453	385-480

[1a]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	555-1345	515-1258	515-1345	561-1285	524-1283	524-1285	n.a	n.a	n.a
Working Height (2)	n.a	n.a	n.a	555-1126	515-1053	515-1126	561-1076	524-1074	524-1076	n.a	n.a	n.a
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Seating Height	n.a	n.a	n.a	413-483	368-436	368-483	404-483	368-436	368-483	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)

K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

n.a. = not available

# Ergonomics Requirement Specification for External Machine Manufacturers

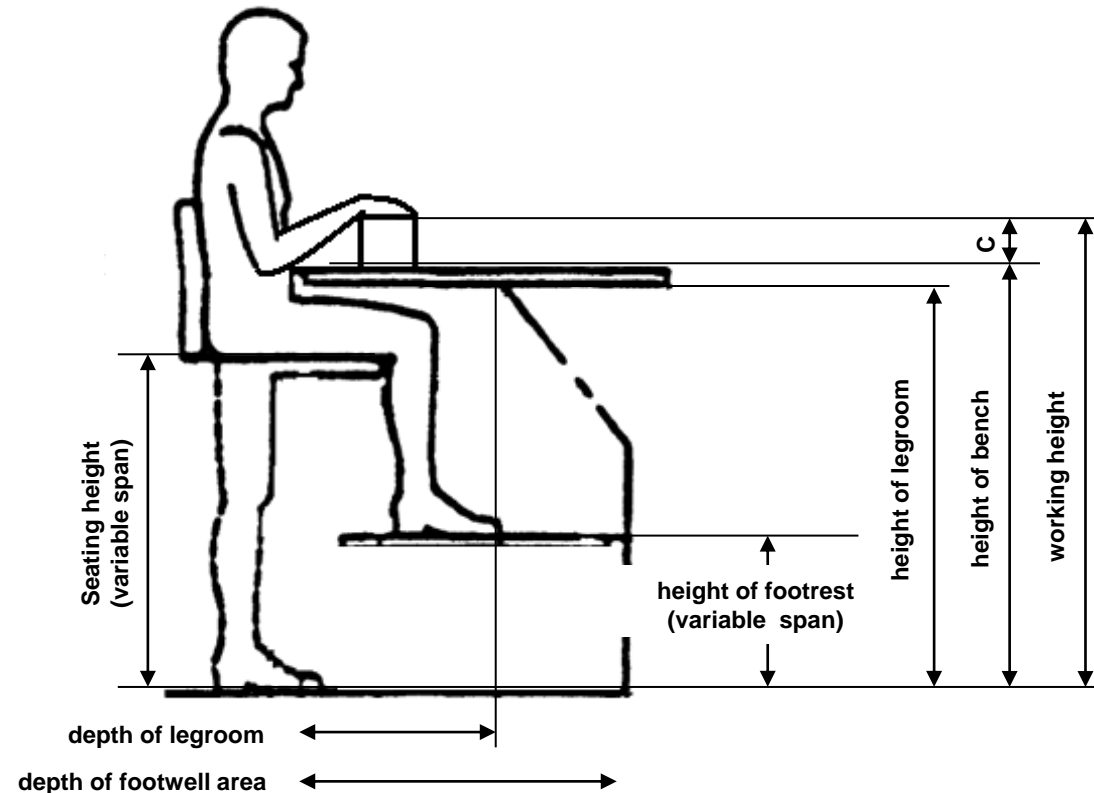
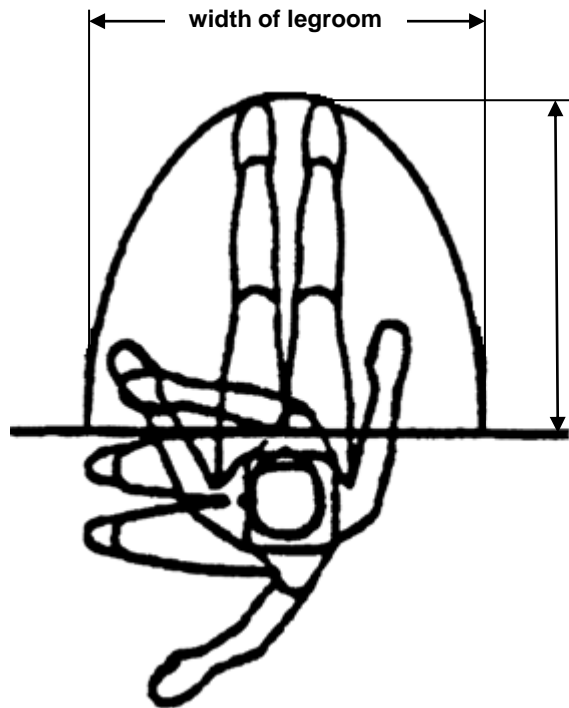
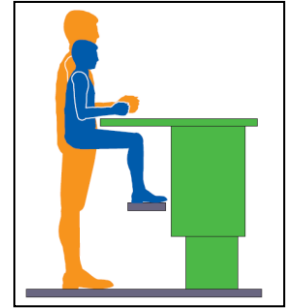
Our Requirements to New Machines

[1b] Workplace for sit-stand position  
*Fixed height of bench*

# [1b] Workplace for sit-stand position

## *Fixed height of bench*

- › Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [1b] Workplace for sit-stand position

## Fixed height of bench

[1b]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	1324	1350	1254	1302	1284	1190	1237	1328	1230	1279	1267	1174	1220	1259	1172	1216
Working Height (2)	1108	1130	1050	1090	1075	997	1036	1112	1030	1071	1061	983	1022	1054	982	1018
Working Height (3)	1000	120	948	984	971	900	935	1004	930	967	958	888	923	952	887	919
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	519	505	485	505	482	462	482	n.a	n.a	n.a	471	449	487	n.a	n.a	n.a
Depth of Footwell Area	849	840	795	840	802	758	802	n.a	n.a	n.a	791	745	791	n.a	n.a	n.a
Width of Legroom	1038	1010	970	1010	964	924	964	n.a	n.a	n.a	942	898	974	n.a	n.a	n.a
Seating Height	808-966	820-970	745-895	780-935	766-917	708-850	727-889	822-966	741-890	781-931	760-902	701-839	721-878	761-900	693-835	725-871
Height of footrest	248-503	300-530	265-490	260-530	299-522	275-487	260-526	281-524	239-498	240-539	288-502	268-469	249-508	281-490	240-450	245-486

[1b]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	1259	1182	1220	1193	1193	1193	1280	1188	1234
Working Height (2)	n.a	n.a	n.a	1054	990	1022	999	999	999	1072	995	1034
Working Height (3)	n.a	n.a	n.a	952	894	923	902	902	902	968	899	933
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Seating Height	n.a	n.a	n.a	773-912	709-847	741-879	691-842	684-843	691-843	n.a	n.a	n.a
Height of footrest	n.a	n.a	n.a	295-499	274-475	263-507	208-438	248-475	208-475	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)
K = the thickness of the workbench / desktop
Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
Working height (3): Dimensions [mm] for work tasks with "low requirements for visual control and increased use of the upper body muscles" (k=0,9) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
n.a. = not available
An example for the calculation of 1b

# [1b] Workplace for sit-stand position

## *Fixed height of bench*

### Definitions:

- › **C** is the distance between area of manual handling and work bench surface (height of object / tool)
- › **K** is the thickness of the work bench / desk top

### Further Information:

- › For checking purposes after design of work places it is always recommended to calculate and validate that there is enough free space for thighs ([calculation.pptx](#))
- › [Information to working height and height of work bench](#)
- › [Explanation of the parameter k](#) to consider visual and fine motor skills
- › [An example for the calculation of \[1b\]](#)

# Ergonomics Requirement Specification for External Machine Manufacturers

## Our Requirements to New Machines

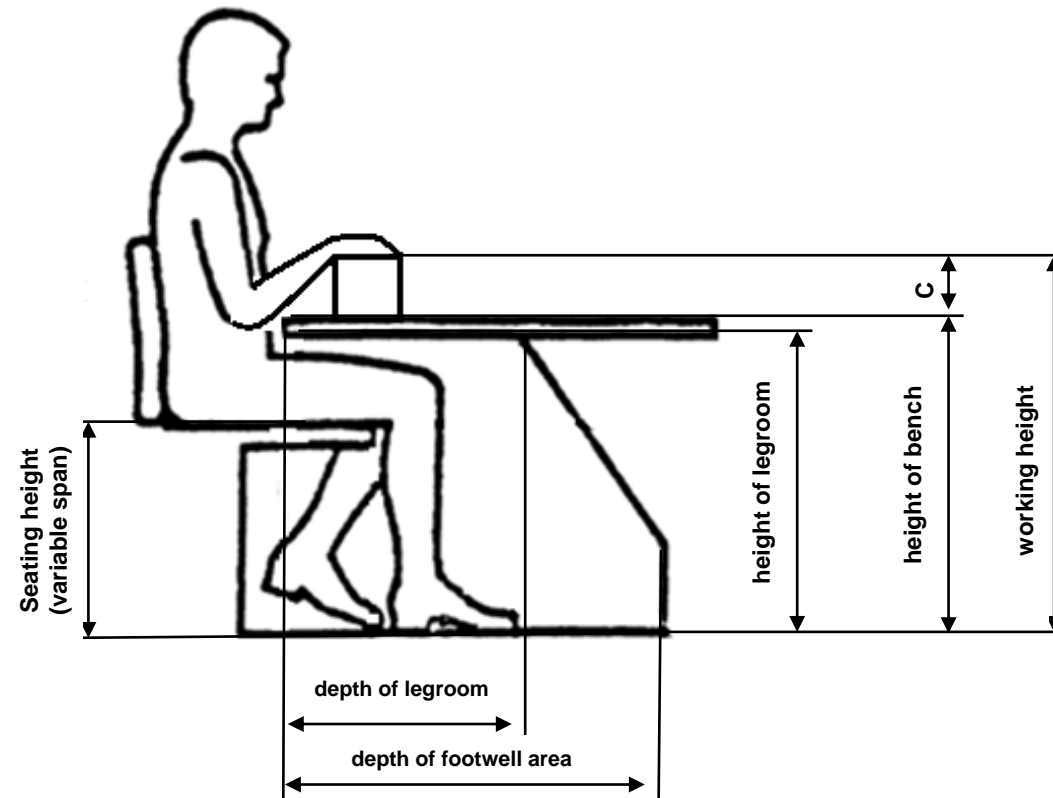
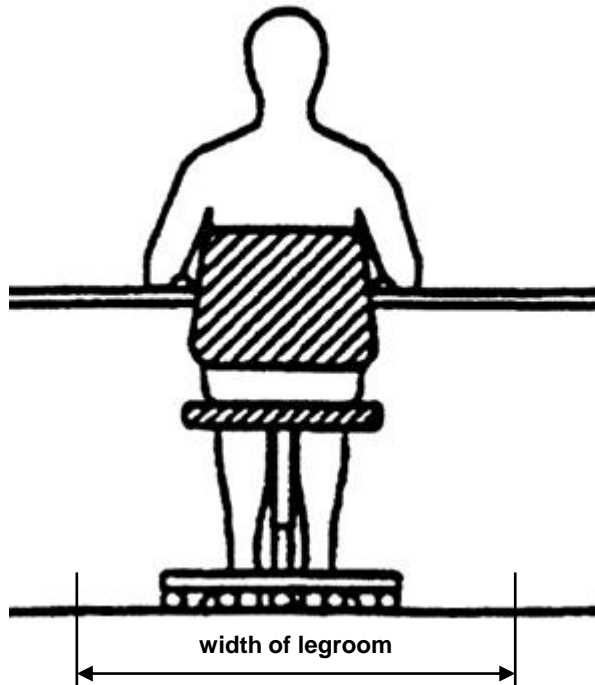
[2a] Workplace in sitting position  
Variable height of bench



# [2a] Workplace in sitting position

## Variable height of bench

- › Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [2a] Workplace in sitting position

## Variable height of bench

[2a]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	598-871	708-964	660-910	660-910	652-899	600-834	600-899	694-965	626-917	626-965	659-896	605-826	605-896	665-896	826-858	826-896
Working Height (2)	560-815	600-830	560-785	560-830	553-776	510-722	510-776	588-831	532-791	532-831	559-773	514-715	514-773	564-773	532-742	532-773
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	519	505	485	505	482	462	482	n.a	n.a	n.a	471	449	487	n.a	n.a	n.a
Depth of Footwell Area	849	840	795	840	802	758	802	n.a	n.a	n.a	791	745	791	n.a	n.a	n.a
Width of Legroom	790	770	810	810	735	733	735	n.a	n.a	n.a	743	748	748	n.a	n.a	n.a
Seating Height	370-535***	440-520	405-480	405-520	395-467	363-433	363-467	442-541	392-502	392-541	400-472	370-433	370-472	410-480	385-453	385-480

[2a]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	654-879	606-827	606-879	661-917	617-869	617-917	n.a	n.a	n.a
Working Height (2)	n.a	n.a	n.a	555-759	515-716	515-759	561-791	524-751	524-791	n.a	n.a	n.a
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	785	907	907	705	732	732	773	822	822	n.a	n.a	n.a
Seating Height	n.a	n.a	n.a	413-478	372-435	372-478	404-483	368-436	368-483	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)

K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)  
n.a. = not available

An example for the calculation of 2a

\*\*\*out of DIN EN ISO 14738: 2009-07

# Ergonomics Requirement Specification for External Machine Manufacturers

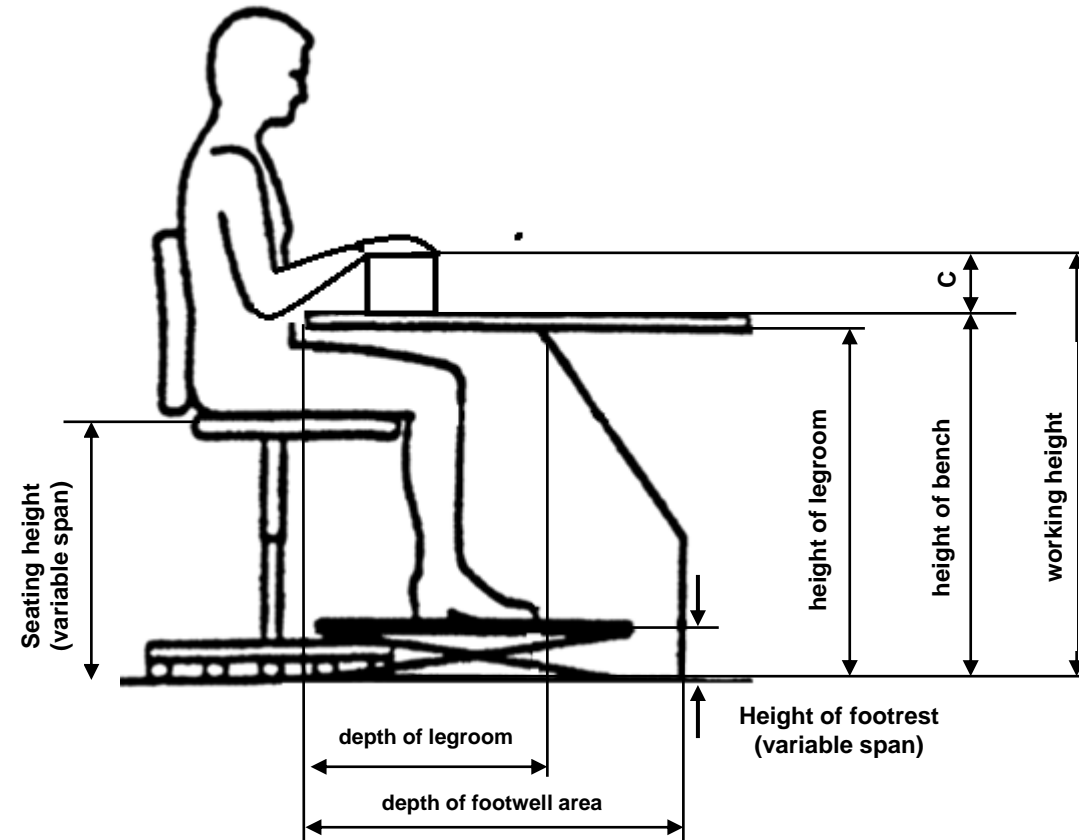
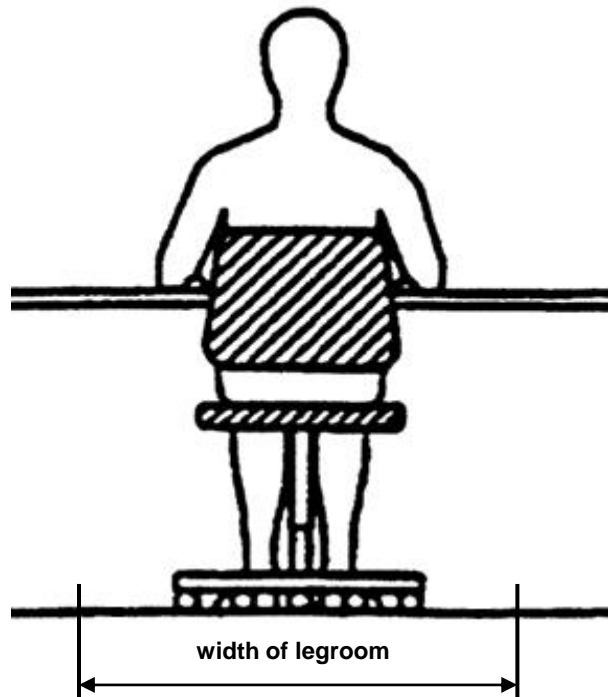
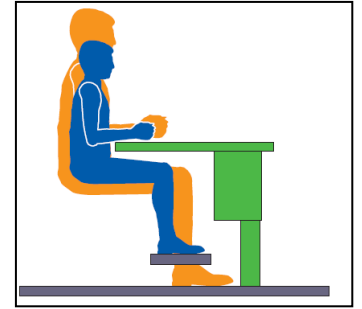
## Our Requirements to New Machines

[2b] Workplace in sitting position  
Fixed height of bench

# [2b] Workplace in sitting position

## *Fixed height of bench*

- › Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [2b] Workplace in sitting position

## Fixed height of bench

[2b]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	[871]	864	810	864	799	734	799	865	817	865	796	726	796	796	758	796
Working Height (2)	[815]	730	685	730	676	622	676	731	691	731	673	615	673	673	642	673
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	519	505	485	505	482	462	482	n.a	n.a	n.a	471	449	487	n.a	n.a	n.a
Depth of Footwell Area	849	840	795	840	802	758	802	n.a	n.a	n.a	791	745	791	n.a	n.a	n.a
Width of Legroom	790	770	810	810	735	733	735	747	767	767	743	748	748	732	750	750
Seating Height*	370-535***	440-520	405-480	405-520	395-467	363-433	363-467	442-541	392-502	392-541	400-472	370-433	370-472	410-480	385-453	385-480
Height of footrest	0-165	0-80	0-75	0-115	0-72	0-70	0-104	0-99	0-110	0-149	0-72	0-63	0-102	0-70	0-68	0-95

\*\*\*out of DIN EN ISO 14738: 2009-07

[2b]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	779	727	779	817	769	817	n.a	n.a	n.a
Working Height (2)	n.a	n.a	n.a	659	616	659	691	651	691	n.a	n.a	n.a
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	785	907	907	705	732	732	773	822	822	n.a	n.a	n.a
Seating Height*	n.a	n.a	n.a	413-478	372-435	372-478	404-483	368-436	368-483	n.a	n.a	n.a
Height of footrest	n.a	n.a	n.a	0-65	0-63	0-106	0-79	0-68	0-115	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)

K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

n.a. = not available

An example for the calculation of 2b

\* Seating height above height of footrest

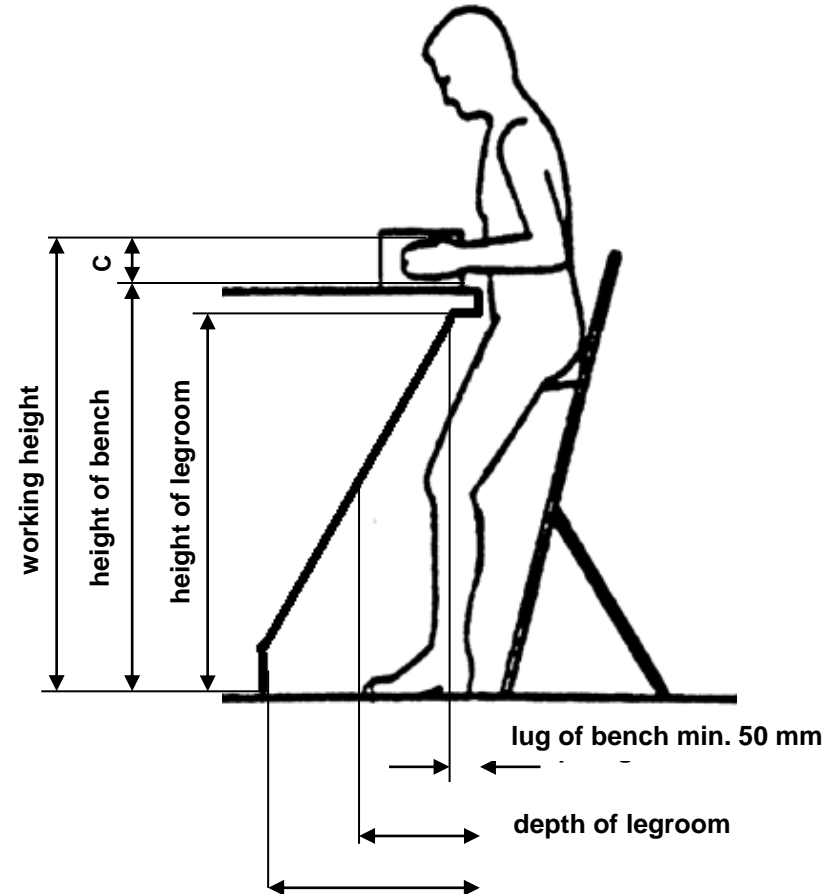
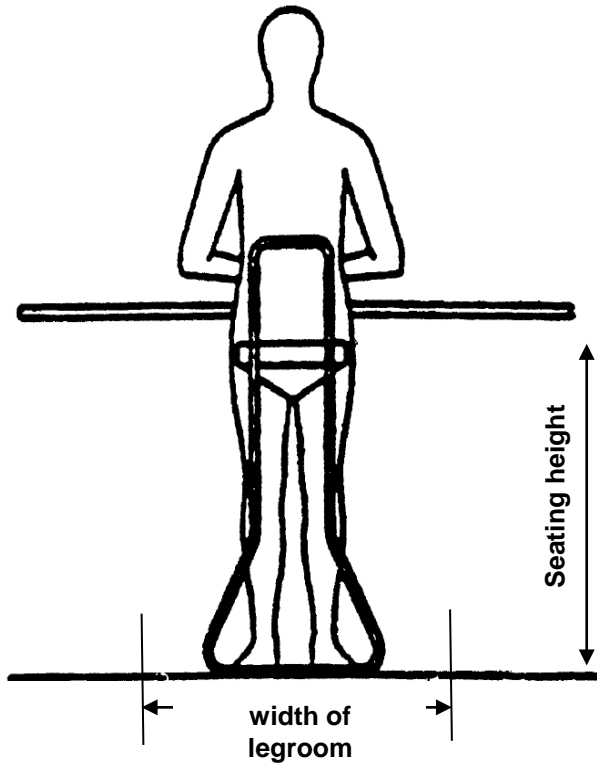
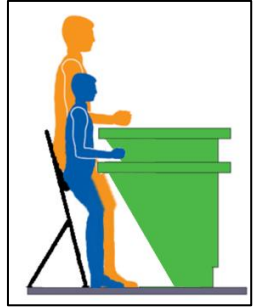
# Ergonomics Requirement Specification for External Machine Manufacturers

## Our Requirements to New Machines

[3a] Workplace with sit-stand-chair  
Variable height of bench

# [3a] Workplace with sit-stand-chair *Variable height of bench*

- › Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [3a] Workplace with sit-stand-chair

## Variable height of bench

[3a]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	1182-1458	1260-1400	1182-1326	1182-1400	1199-1368	1118-1268	1118-1368	1235-1434	1140-1324	1140-1434	1182-1352	1097-1254	1097-1352	1174-1350	1104-1247	1104-1350
Working Height (2)	990-1220	1055-1205	990-1110	990-1205	1004-1145	937-1062	937-1145	1034-1200	955-1108	955-1200	990-1132	919-1050	919-1132	983-1130	925-1044	925-1130
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	280	285	260	285	270	246	270	n.a	n.a	n.a	270	246	270	267	243	267
Depth of Footwell Area	560	570	520	570	540	492	540	n.a	n.a	n.a	540	492	540	534	486	534
Width of Legroom	790	770	810	810	735	733	735	747	767	767	743	748	748	732	750	750
Seating Height	668-831	714-845	669-777	669-845	666-789	614-721	614-789	714-853	650-774	650-853	666-783	610-721	610-783	n.a	n.a	n.a

[3a]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	1175-1345	1109-1258	1109-1345	1117-1285	1117-1283	1117-1285	1187-1386	1112-1288	1112-1386
Working Height (2)	n.a	n.a	n.a	984-1126	929-1053	929-1126	936-1076	936-1074	936-1076	994-1160	932-1078	932-1160
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	785	907	907	705	732	732	773	822	822	n.a	n.a	n.a
Seating Height	667-822	635-778	635-822	685-800	636-743	636-800	n.a	n.a	n.a	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)

K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

n.a. = not available

An example for the calculation of 3a



# Ergonomics Requirement Specification for External Machine Manufacturers

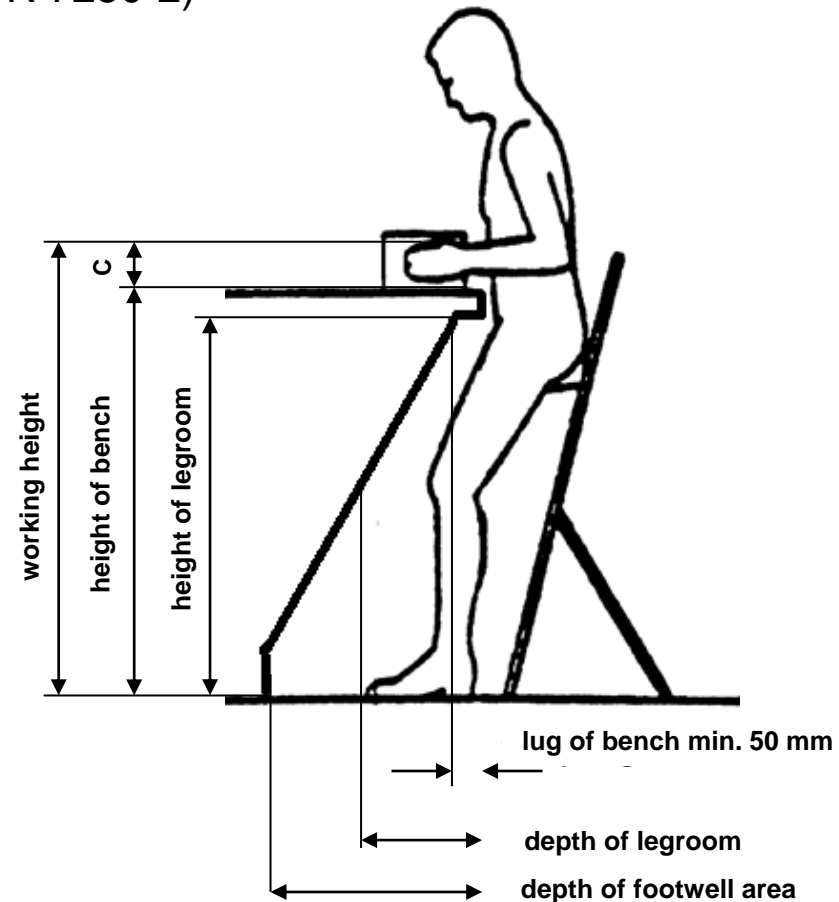
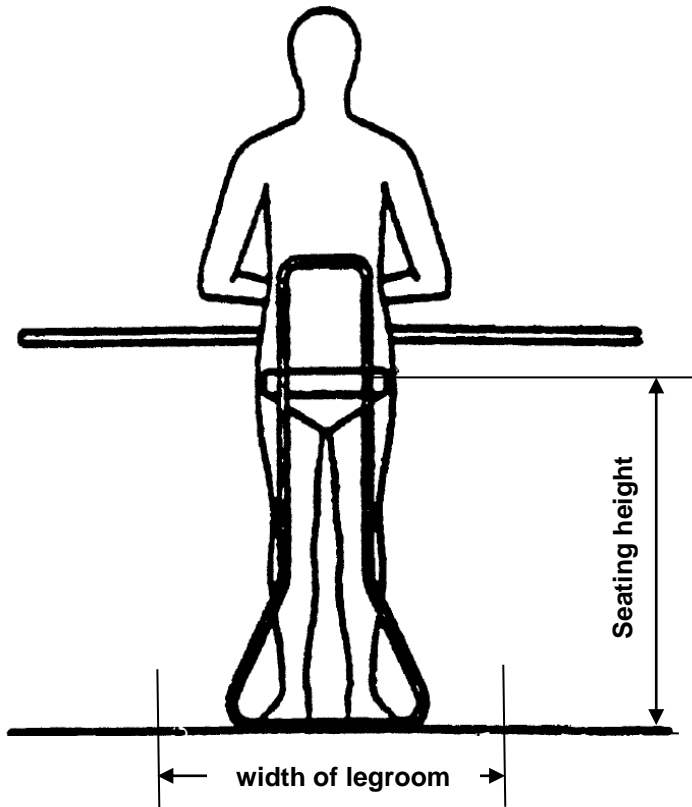
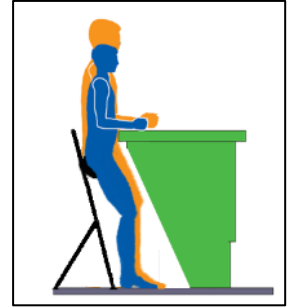
## Our Requirements to New Machines

[3b] Workplace with sit-stand-chair  
Fixed height of bench

# [3b] Workplace with sit-stand-chair

## *Fixed height of bench*

- › Dimensions with supplement for movement of feet  
(following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- › All dimensions in [mm]



# [3b] Workplace with sit-stand-chair

## Fixed height of bench

[3b]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	1324	1350	1254	1302	1284	1190	1237	1328	1230	1279	1267	1174	1220	1259	1172	1216
Working Height (2)	1108	1130	1050	1090	1075	997	1036	1112	1030	1071	1061	983	1022	1054	982	1018
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	280	285	260	285	270	246	270	n.a	n.a	n.a	270	246	270	267	243	267
Depth of Footwell Area	560	570	520	570	540	492	540	n.a	n.a	n.a	540	492	540	534	486	534
Width of Legroom	790	770	810	810	735	733	735	747	767	767	743	748	748	732	750	750
Seating Height	668-831	714-845	669-777	669-845	666-789	614-721	614-789	714-853	650-774	650-853	666-783	610-721	610-783	n.a	n.a	n.a

[3b]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	1259	1182	1220	1193	1193	1193	1280	1188	1234
Working Height (2)	n.a	n.a	n.a	1054	990	1022	999	999	999	1072	995	1034
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of Legroom	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K	height of bench-K
Depth of Legroom	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Depth of Footwell Area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Width of Legroom	785	907	907	705	732	732	773	822	822	n.a	n.a	n.a
Seating Height	667-822	635-778	635-822	685-800	636-743	636-800	n.a	n.a	n.a	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)

K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

n.a. = not available

An example for the calculation of 3b

# Ergonomics Requirement Specification for External Machine Manufacturers

## Our Requirements to New Machines

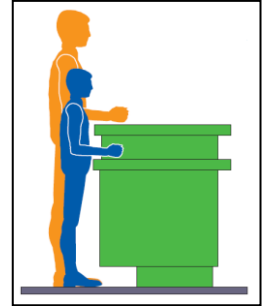
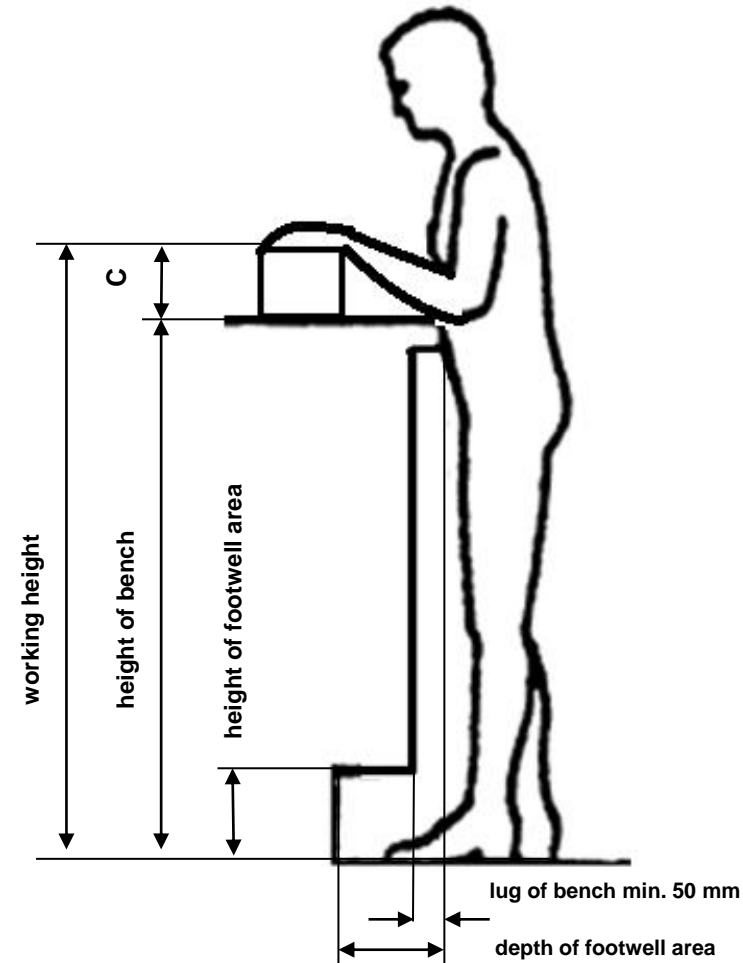
[4a] Workplace in standing position  
Variable height of bench

[Ergonomics Requirement Specification for External Machine Manufacturers - Continental AG](#)

# [4a] Workplace in standing position

## *Variable height of bench*

- ▶ Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- ▶ All dimensions in [mm]



# [4a] Workplace in standing position

## Variable height of bench

[4a.1]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	1182-1458	1260-1440	1182-1326	1182-1440	1199-1368	1118-1268	1118-1368	1235-1434	1140-1324	1140-1434	1182-1352	1097-1254	1097-10352	1174-1350	1104-1247	1104-1350
Working Height (2)	990-1220	1055-1205	990-1110	990-1205	1004-1145	937-1062	937-1145	1034-1200	955-1108	955-1200	990-1132	919-1050	919-1132	983-1130	925-1044	925-1130
Working Height (2)	894-1101	953-1008	894-1002	894-1008	907-1034	846-959	846-1034	934-1083	863-1000	863-1083	894-1022	830-948	830-1022	888-1020	836-943	836-1020
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of footwell area	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
Depth of legroom	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**
Depth of footwell area	207	211	192	211	200	182	200	n.a	n.a	n.a	200	182	200	198	180	198

[4a.1]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	1175-1345	1109-1258	1109-1345	1117-1285	1117-1283	1117-1285	1187-1387	1112-1288	1112-1387
Working Height (2)	n.a	n.a	n.a	984-1126	929-1053	929-1126	936-1076	936-1074	936-1076	994-1160	932-1078	932-1160
Working Height (2)	n.a	n.a	n.a	889-1016	839-951	839-1016	845-971	845-970	845-971	898-1047	842-973	842-1047
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of footwell area	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
Depth of legroom	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**
Depth of footwell area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)  
 K = the thickness of the workbench / desktop

Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

Working height (3): Dimensions [mm] for work tasks with "low requirements for visual control and increased use of the upper body muscles" (k=0,9) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)

n.a. = not available

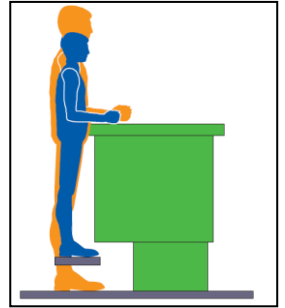
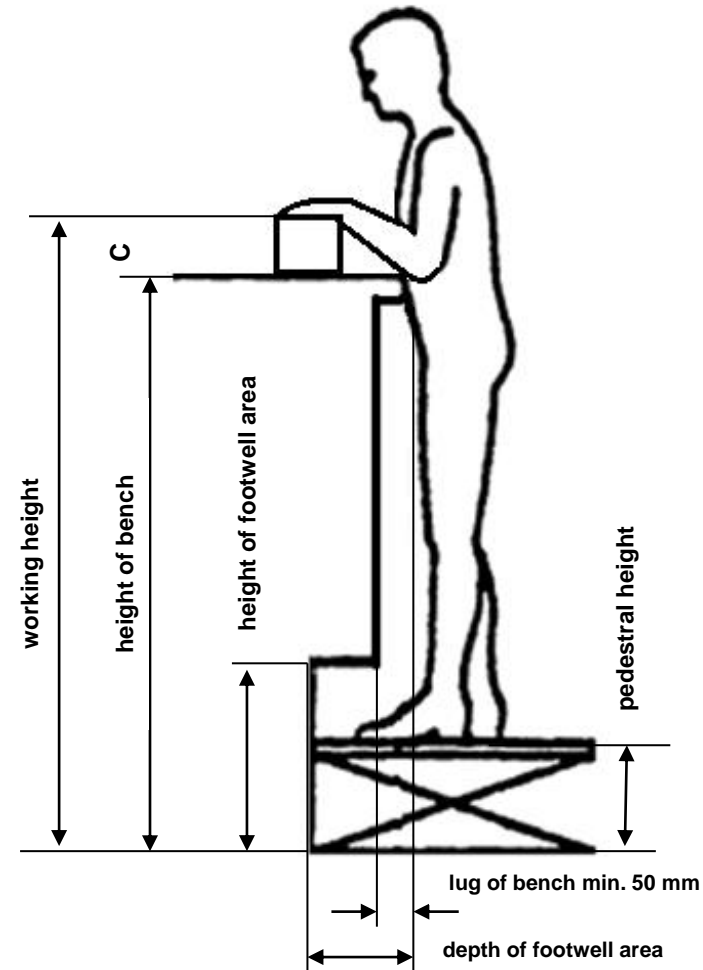
\* Value taken from DIN EN ISO 14738: 2009-07

\*\* Value for load change by shifting weight to other foot

# [4a] Workplace in standing position

## *Variable height of bench (variable by pedestral)*

- ▶ Variable by pedestral
- ▶ Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- ▶ All dimensions in [mm]



# Ergonomics Requirement Specification for External Machine Manufacturers

## Our Requirements to New Machines

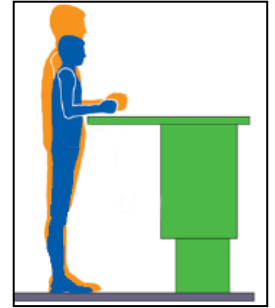
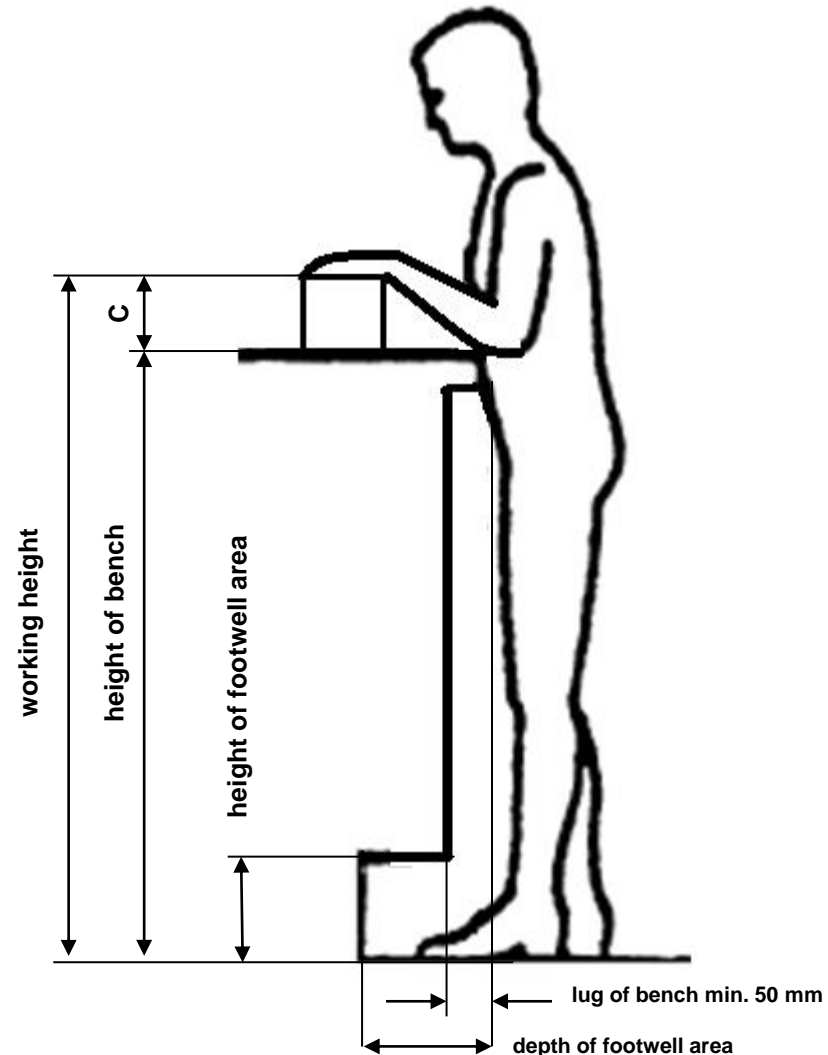
[4b] Workplace in standing position  
*Fixed height of bench*



# [4b] Workplace in standing position

## *Fixed height of bench*

- ▶ Dimensions with supplement for movement of feet (following DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)
- ▶ All dimensions in [mm]



# [4b] Workplace in standing position

## Fixed height of bench

[4b]	Europe	Germany			Korea			Italy			Japan			Thailand		
	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	1324	1350	1254	1302	1284	1190	1237	1328	1230	1279	1267	1174	1220	1259	1172	1216
Working Height (2)	1108	1130	1050	1090	1075	997	1036	1112	1030	1071	1061	983	1022	1054	982	1018
Working Height (2)	100	1020	948	984	971	900	935	1004	930	967	958	888	923	952	887	919
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of footwell area	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
Depth of legroom	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**
Depth of footwell area	207	211	192	211	200	182	200	n.v	n.v	n.v	230	212	230	228	210	228

[4b]	USA			China			Mexico			Malaysia		
	M	F	M/F	M	F	M/F	M	F	M/F	M	F	M/F
Working Height (1)	n.a	n.a	n.a	1259	1182	1220	1193	1193	1193	1280	1188	1234
Working Height (2)	n.v	n.v	n.v	1054	990	1022	999	999	999	1072	995	1034
Working Height (2)	n.a	n.a	n.a	952	894	923	902	902	902	968	899	933
Height of Bench	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C	working height - C
Height of footwell area	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*	96*
Depth of legroom	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**	50**
Depth of footwell area	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a

### Definitions and Further Information

C = the distance between area of manual handling and work bench surface (height of object/ tool)  
 K = the thickness of the workbench / desktop  
 Working height (1): Dimensions [mm] for work tasks with "high requirements for visual control" and "fine motor skills" (k=1,2) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)  
 Working height (2): Dimensions [mm] for work tasks with "average requirements for visual control and/ or fine motor skills" (k=1) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)  
 Working height (3): Dimensions [mm] for work tasks with "low requirements for visual control and increased use of the upper body muscles" (k=0,9) (according to DIN EN ISO 14738: 2009-07, DIN CEN ISO/TR 7250-2)  
 n.a. = not available

\* Value taken from DIN EN ISO 14738: 2009-07

\*\* Value for load change by shifting weight to other foot

# [4b] Workplace in standing position

## *Fixed height of bench*

### **Definitions:**

- › **C** is the distance between area of manual handling and work bench surface (height of object / tool)
- › **K** is the thickness of the work bench / desk top

### **Further Information:**

- › For checking purposes after design of work places it is always recommended to calculate and validate that there is enough free space for thighs
- › *Information to working height and height of work bench*
- › *Explanation of the parameter k to consider visual and fine motor skills*
- › An example for the calculation of [1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b]