

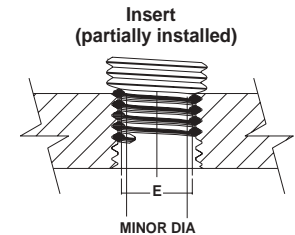
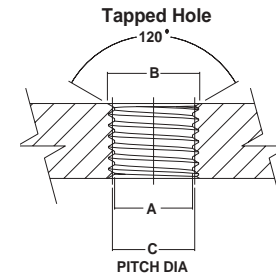
Recoil Tapped Hole and Fitted Size Data

Metric Thread Series

METRIC (ISO)		TAPPED HOLE							
SIZE	DRILL SIZE	A MINOR DIA	B MAJOR DIA	C CLASS 5H		C CLASS 6H		E INSERTS FITTED	
M2 X 0.4	2.10	2.177	2.087	2.520	2.295	2.260	2.310	2.260	1.567
M2.2 X 0.45	2.30	2.397	2.297	2.785	2.532	2.492	2.547	2.492	1.713
M2.5 X 0.45	2.60	2.697	2.597	3.085	2.832	2.792	2.847	2.792	2.013
M3 X 0.5	3.10	3.220	3.108	3.650	3.367	3.325	3.384	3.325	2.459
M3.5 X 0.6	3.60	3.755	3.630	4.279	3.940	3.890	3.959	3.890	2.850
M4 X 0.7	4.10	4.292	4.152	4.909	4.509	4.455	4.529	4.455	3.242
M5 X 0.8	5.20	5.333	5.173	6.039	5.577	5.520	5.597	5.520	4.134
M6 X 1.0	6.20	6.406	6.216	7.299	6.719	6.650	6.742	6.650	4.917
M7 X 1.0	7.20	7.406	7.216	8.299	7.719	7.650	7.742	7.650	5.917
M8 X 1.0	8.20	8.406	8.216	9.299	8.719	8.650	8.742	8.650	6.917
M8 X 1.25	8.30	8.483	8.271	9.624	8.886	8.812	8.912	8.812	6.647
M9 X 1.25	9.30	9.483	9.271	10.624	9.886	9.812	9.912	9.812	7.647
M10 X 1.25	10.30	10.483	10.271	11.624	10.886	10.812	10.912	10.812	8.647
M10 X 1.5	10.30	10.561	10.325	11.949	11.061	10.974	11.089	10.974	8.376
M11 X 1.5	11.30	11.561	11.325	12.949	12.061	11.974	12.089	11.974	9.376
M12 X 1.25	12.30	12.483	12.271	13.624	12.898	12.812	12.926	12.812	10.647
M12 X 1.5	12.5	12.56	13.324	14.131	12.974	13.067	12.974	13.099	10.376
M12 X 1.75	12.40	12.644	12.379	14.273	13.236	13.137	13.271	13.137	10.106
M14 X 1.5	14.30	14.561	14.325	15.949	15.067	14.974	15.099	14.974	12.376
M14 X 2.0	14.40	14.733	14.433	16.598	15.406	15.299	15.444	15.299	11.835
M16 X 1.5	16.25	16.561	16.325	17.949	17.067	16.974	17.099	16.974	14.376
M16 X 2.0	16.50	16.733	16.433	18.598	17.406	17.299	17.444	17.299	13.835
M18 X 1.5	18.25	18.561	18.325	19.949	19.067	18.974	19.099	18.974	16.376
M18 X 2.0	18.50	18.733	18.433	20.598	19.406	19.299	19.444	19.299	15.835
M18 X 2.5	18.50	18.896	18.541	21.248	19.738	19.624	19.778	19.624	15.294
M20 X 1.5	20.25	20.561	20.325	21.949	21.067	20.974	21.099	20.974	18.376
M20 X 2.0	20.50	20.733	20.433	22.598	21.406	21.299	21.444	21.299	17.835
M20 X 2.5	20.50	20.896	20.541	23.248	21.738	21.624	21.778	21.624	17.294
M22 X 1.5	22.50	22.561	22.325	23.949	23.067	22.974	23.099	22.974	20.376
M22 X 2.0	22.50	22.733	22.433	24.598	23.406	23.299	23.444	23.299	19.835
M22 X 2.5	22.50	22.896	22.541	25.248	23.738	23.624	23.778	23.624	19.294
M24 X 2.0	24.25	24.733	24.433	26.598	25.414	25.299	25.454	25.299	21.835
M24 X 3.0	24.75	25.050	24.650	27.897	26.093	25.949	26.135	25.949	20.752
M27 X 3.0	27.50	28.050	27.650	30.897	29.093	28.949	29.135	28.949	23.752
M30 X 3.5	30.50	31.208	30.758	34.547	32.428	32.273	32.472	32.273	26.211
M33 X 3.5	33.50	34.208	33.758	37.547	35.428	35.273	35.472	35.273	29.211
M36 X 4.0	36.50	37.341	36.866	41.196	38.763	38.598	38.809	38.598	31.670
M39 X 4.0	39.50	40.341	39.866	44.196	41.763	41.598	41.809	41.598	34.670

Standard size drills are suggested even though in these sizes they vary slightly from minor diameter limits. Drill sizes are recommended only and test should be carried out to select the one suitable for the material involved.

Countersinking: It is recommended that a 120° countersink is provided before tapping to prevent a feather edge at the start of the lead thread. When design prevents the use of a countersink, any feather edges or deformed material at the thread lead should be removed prior to tapping. This will facilitate insert installation and reduce the effects of removing the countersinking operation.

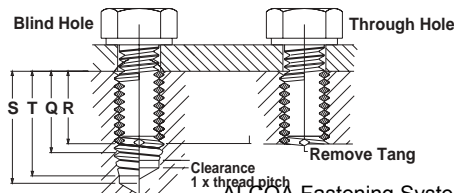


Drilling, Tapping and Installation Depths

Metric Thread Series

Specifications for Drilling, Tapping and Installation Depths

METRIC (ISO)																				
BASIC LENGTH OF INSERT IN TERMS OF NOMINAL DIAMETER OF SCREW "D"																				
THREAD SIZE	1D				1 1/2 D				2D				2 1/2 D				3D			
	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T	Q	R	S	T
M2 X 0.4	2.00	1.60	3.80	3.40	3.00	2.60	4.80	4.40	4.00	3.60	5.80	5.40	5.00	4.60	6.80	6.40	6.00	5.60	7.80	7.40
M2.2 X 0.45	2.20	1.75	4.23	3.98	3.30	2.85	5.33	4.88	4.40	3.95	6.43	5.98	5.50	5.05	7.53	7.08	6.60	6.15	8.63	8.18
M2.5 X 0.45	2.50	2.05	4.53	4.08	3.75	3.30	5.78	5.33	5.00	4.55	7.03	6.58	6.25	5.80	8.28	7.83	7.50	7.05	9.53	9.08
M3 X 0.5	3.00	2.50	5.25	4.75	4.50	4.00	6.75	6.25	6.00	5.50	8.25	7.75	7.50	7.00	9.75	9.25	9.00	8.50	11.25	10.75
M3.5 X 0.6	3.50	2.90	6.20	5.60	5.25	4.65	7.95	7.35	7.00	6.40	9.70	9.10	8.75	8.15	11.45	10.85	10.50	9.90	13.20	12.60
M4 X 0.7	4.00	3.30	7.15	6.45	6.00	5.30	9.15	8.45	8.00	7.30	11.15	10.45	10.00	9.30	13.15	12.45	12.00	11.30	15.15	14.45
M4.5 X 0.75	4.50	3.75	7.88	7.13	6.75	6.00	10.13	9.38	9.00	8.25	12.38	11.63	11.25	10.50	14.63	13.88	13.50	12.75	16.88	16.13
M5 X 0.8	5.00	4.20	8.60	7.80	7.50	6.70	11.10	10.30	10.00	9.20	13.60	12.80	12.50	11.70	16.10	15.30	15.00	14.20	18.60	17.80
M6 X 1.0	6.00	5.00	10.50	9.50	9.00	8.00	13.50	12.50	12.00	11.00	16.50	15.50	15.00	14.00	19.50	18.50	18.00	17.00	22.50	21.50
M7 X 1.0	7.00	6.00	11.50	10.50	10.50	9.50	15.00	14.00	14.00	13.00	18.50	17.50	17.50	16.50	22.00	21.00	21.00	20.00	25.50	24.50
M8 X 1.0	8.00	7.00	12.50	11.50	12.00	11.00	16.50	15.50	16.00	15.00	20.50	19.50	20.00	19.00	24.50	23.50	24.00	23.00	28.50	27.50
M8 X 1.25	8.00	6.75	13.63	12.38	12.00	10.75	17.63	16.38	16.00	14.75	21.63	20.38	20.00	18.75	25.63	24.38	24.00	22.75	29.63	28.38
M9 X 1.25	9.00	7.75	14.63	13.38	13.50	12.25	19.13	17.88	18.00	16.75	23.63	22.38	22.50	21.25	28.13	26.88	27.00	25.75	32.63	31.38
M10 X 1.25	10.00	8.75	15.63	14.38	15.00	13.75	20.63	19.38	20.00	18.75	25.63	24.38	25.00	23.75	30.63	29.38	30.00	28.75	35.63	34.38
M10 X 1.5	10.00	8.50	16.75	15.25	15.00	13.50	21.75	20.25	20.00	18.50	26.75	25.25	25.00	23.50	31.75	30.25	30.00	28.50	36.75	35.25
M11 X 1.5	11.00	9.50	17.75	16.25	16.50	15.00	23.25	21.75	22.00	20.50	28.75	27.25	27.50	26.00	34.25	32.75	33.00	31.50	39.75	38.25
M12 X 1.25	12.00	10.75	17.63	16.38	18.00	16.75	23.63	22.38	24.00	22.75	29.63	27.38	30.00	28.75	35.63	34.38	36.00	34.75	41.63	40.38
M12 X 1.5	12.00	10.50	18.75	17.25	18.00	16.50	24.75	23.25	24.00	22.50	30.75	29.25	30.00	28.50	36.75	35.25	36.00	34.50	42.75	41.25
M12 X 1.75	12.00	10.25	19.88	18.13	18.00	16.25	25.88	24.13	24.00	22.25	31.88	30.13	30.00	28.25	37.88	36.13	36.00	34.25	43.88	42.13
M14 X 1.5	14.00	12.50	20.75	19.25	21.00	19.50	27.75	26.25	28.00	26.50	34.75	33.25	35.00	33.50	41.75	40.25	42.00	40.50	48.75	47.25
M14 X 2.0	14.00	12.00	23.00	21.00	21.00	19.00	30.00	28.00	28.00	26.00	37.00	35.00	35.00	33.00	44.00	42.00	42.00	40.00	51.00	49.00
M16 X 1.5	16.00	14.50	22.75	21.25	24.00	22.50	30.75	29.25	32.00	30.50	38.75	37.25	40.00	38.50	46.75	45.25	48.00	46.50	54.75	53.25
M16 X 2.0	16.00	14.00	25.00	23.00	24.00	22.00	33.00	31.00	32.00	30.00	41.00	39.00	40.00	38.00	49.00	47.00	48.00	46.00	57.00	55.00
M18 X 1.5	18.00	16.50	24.75	23.25	27.00	25.50	33.75	32.25	36.00	34.50	42.75	41.25	45.00	43.50	51.75	50.25	54.00	52.50	60.75	59.25
M18 X 2.0	18.00	16.00	27.00	25.00	27.00	25.00	36.00	34.00	36.00	34.00	45.00	43.00	45.00	43.00	54.00	52.00	54.00	52.00	63.00	61.00
M18 X 2.5	18.00	15.50	29.25	26.75	27.00	24.50	38.25	35.75	36.00	33.50	47.25	44.75	45.00	42.50	56.25	53.75	54.00	51.50	65.25	62.75
M20 X 1.5	20.00	18.50	26.75	25.25	30.00	28.50	36.75	35.25	40.00	38.50	46.75	45.25	50.00	48.50	56.75	55.25	60.00	58.50	66.75	65.25
M20 X 2.0	20.00	18.00	29.00	27.00	30.00	28.00	39.00	37.00	40.00	38.00	49.00	47.00	50.00	48.00	59.00	57.00	60.00	58.00	69.00	67.00
M20 X 2.5	20.00	17.50	31.25	28.75	30.00	27.50	41.25	38.75	40.00	37.50	51.25	48.75	50.00	47.50	61.25	58.75	60.00	57.50	71.25	68.75
M22 X 1.5	22.00	20.50	28.75	27.25	33.00	31.50	39.75	38.25	44.00	42.50	50.75	49.25	55.00	53.50	61.75	60.25	66.00	64.50	72.75	71.25
M22 X 2.0	22.00	20.00	31.00	29.00	33.00	31.00	42.00	40.00	44.00	42.00	53.00	51.00	55.00	53.00	64.00	62.00	66.00	64.00	75.00	73.00
M22 X 2.5	22.00	19.50	33.25	30.75	33.00	30.50	44.25	41.75	44.00	41.50	55.25	52.75	55.00	52.50	66.25	63.75	66.00	63.50	77.25	74.75
M24 X 2.0	24.00	22.00	33.00	31.00	36.00	34.00	45.00	43.00	48.00	46.00	57.00	55.00	60.00	58.00	69.00	67.00	72.00	70.00	81.00	79.00
M24 X 3.0	24.00	21.00	37.50	34.50	36.00	33.00	49.50	46.50	48.00	45.00	61.50	58.50	60.00	57.00	73.50	70.50	72.00	69.00	85.50	82.50
M27 X 3.0	27.00	24.00	40.50	37.50	40.50	37.50	54.00	51.00	54.00	51.00	67.50	64.50	67.50	64.50	81.00	78.00	81.00	78.00	94.50	91.50
M30 X 3.5	30.00	26.50	45.75	42.25	45.00	41.50	60.75	57.25	60.00	56.50	75.75	72.25	75.00	71.50	90.75	87.25	90.00	86.50	105.75	102.25
M33 X 3.5	33.00	29.50	48.75	45.25	49.50	46.00	65.25	61.75	66.00	62.50	81.75	78.25	82.50	79.00	98.25	94.75	99.00	95.50	114.75	111.25
M36 X 4.0	36.00	32.00	54.00	50.00	54.00	50.00	72.00	68.00	72.00	68.00	90.00	86.00	90.00	86.00	108.00	104.00	108.00	104.00	126.00	122.00
M39 X 4.0	39.00	35.00	57.00	53.00	58.50	54.50	76.50	72.50	78.00	74.00	96.00	92.00	97.50	93.50	115.50	111.50	117.00	113.00	135.00	131.00



Drill Depth: The minimum drilling depth "S" allows for one pitch chip clearance between the tip of the tap and the bottom of the drilled hole. "S" minimum allows for tap clearance, the maximum amount of insert set-down and the countersink. Where a spiral pointed tap is used, the drill depths shown should be increased to allow for chip clearance.

Fitted Insert: R = Maximum length of engaged portion of screw when tang is removed. Q = Minimum full tapped thread length. T = Minimum tapping depth - including 3 1/2 threads of plug tap. S = Minimum drill depth - excluding point.