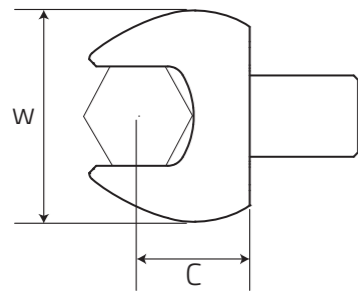




# F1

## Open-End Insert Tools

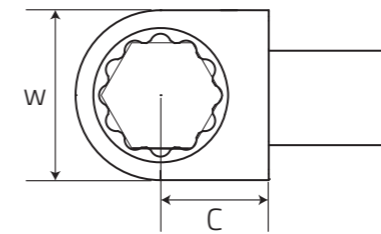


SPECIFICATION	Item No.	□ mm	Size mm/inch	C mm	W mm	Weight g
	F1AA07M	9*12	7mm	17.5	20.8	37.0
F1AA08M	9*12	8mm	17.5	22.0	37.0	
F1AA09M	9*12	9mm	17.5	23.7	37.2	
F1AA10M	9*12	10mm	17.5	24.7	40.0	
F1AA11M	9*12	11mm	17.5	26.1	42.0	
F1AA12M	9*12	12mm	17.5	27.3	42.3	
F1AA13M	9*12	13mm	17.5	28.8	43.0	
F1AA14M	9*12	14mm	20.0	31.7	54.4	
F1AA15M	9*12	15mm	20.0	33.7	55.5	
F1AA16M	9*12	16mm	20.0	35.6	58.5	
F1AA17M	9*12	17mm	20.0	37.8	58.5	
F1AA18M	9*12	18mm	20.0	38.7	61.0	
F1AA19M	9*12	19mm	20.0	41.5	64.2	
F1AA21M	9*12	21mm	25.0	46.0	21.5	
F1AA22M	9*12	22mm	25.0	46.0	21.5	
F1AA24M	9*12	24mm	25.0	50.6	21.5	
F1AA27M	9*12	27mm	32.5	60.0	21.5	
F1AA29M	9*12	29mm	32.5	61.0	22.0	
F1AA30M	9*12	30mm	32.5	64.2	22.0	
F1AA32M	9*12	32mm	32.5	66.1	22.0	
F1AA36M	9*12	36mm	32.5	67.6	22.0	
F1BA13M	14*18	13mm	25.0	29.6	114.7	
F1BA14M	14*18	14mm	25.0	31.3	116.4	
F1BA15M	14*18	15mm	25.0	33.8	116.2	
F1BA16M	14*18	16mm	25.0	36.3	129.5	
F1BA17M	14*18	17mm	25.0	37.5	136.8	
F1BA18M	14*18	18mm	25.0	39.0	136.2	
F1BA19M	14*18	19mm	25.0	41.1	137.5	
F1BA21M	14*18	21mm	25.0	45.5	160.1	
F1BA22M	14*18	22mm	25.0	47.7	162.8	
F1BA24M	14*18	24mm	25.0	50.7	167.8	
F1BA27M	14*18	27mm	32.5	59.5	229.4	
F1BA30M	14*18	30mm	32.5	63.4	237.0	
F1BA32M	14*18	32mm	32.5	65.8	248.2	
F1BA34M	14*18	34mm	32.5	66.7	252.5	
F1BA36M	14*18	36mm	32.5	68.0	244.8	
F1BA38M	14*18	38mm	32.5	67.5	230.0	
F1BA40M	14*18	40mm	37.0	83.1	321.5	
F1BA41M	14*18	41mm	37.0	83.1	321.5	
F1AA0104M	9*12	1/4"	17.5	20.8	37.0	
F1AA0516M	9*12	5/16"	17.5	22.0	37.0	
F1AA0308M	9*12	3/8"	17.5	24.7	40.0	
F1AA0716M	9*12	7/16"	17.5	26.1	42.0	
F1AA0102M	9*12	1/2"	17.5	28.8	43.0	
F1AA0916M	9*12	9/16"	20.0	31.7	54.4	
F1AA0508M	9*12	5/8"	20.0	35.6	58.5	
F1AA1116M	9*12	11/16"	20.0	38.7	61.0	
F1AA0304M	9*12	3/4"	20.0	41.5	64.2	
F1BA0102M	14*18	1/2"	25.0	29.6	114.6	
F1BA0916M	14*18	9/16"	25.0	31.3	116.4	
F1BA0508M	14*18	5/8"	25.0	36.3	129.5	
F1BA1116M	14*18	11/16"	25.0	39.0	136.2	
F1BA0304M	14*18	3/4"	25.0	41.1	137.5	
F1BA1316M	14*18	13/16"	25.0	45.5	160.1	
F1BA0708M	14*18	7/8"	25.0	47.7	162.8	
F1BA1516M	14*18	15/16"	25.0	50.7	167.8	
F1BA0100M	14*18	1"	32.5	59.5	229.4	



# F1

## Ring Insert Tools



SPECIFICATION	Item No.	□ mm	Size mm/inch	C mm	W mm	Weight g
	F1AB07M	9*12	7mm	17.5	20.0	37.4
F1AB08M	9*12	8mm	17.5	20.0	37.0	
F1AB10M	9*12	10mm	17.5	20.0	39.5	
F1AB11M	9*12	11mm	17.5	20.4	42.0	
F1AB12M	9*12	12mm	17.5	22.3	51.1	
F1AB13M	9*12	13mm	17.5	22.3	51.3	
F1AB14M	9*12	14mm	17.5	23.5	52.9	
F1AB15M	9*12	15mm	17.5	24.6	53.5	
F1AB16M	9*12	16mm	17.5	26.5	56.2	
F1AB17M	9*12	17mm	17.5	27.5	55.3	
F1AB18M	9*12	18mm	17.5	28.8	60.0	
F1AB19M	9*12	19mm	17.5	31.2	53.4	
F1AB21M	9*12	21mm	17.5	33.2	58.2	
F1AB22M	9*12	22mm	17.5	35.2	70.6	
F1BB13M	14*18	13mm	25.0	30.0	129.6	
F1BB14M	14*18	14mm	25.0	30.0	132.1	
F1BB15M	14*18	15mm	25.0	30.0	132.1	
F1BB16M	14*18	16mm	25.0	30.0	137.0	
F1BB17M	14*18	17mm	25.0	30.0	141.0	
F1BB18M	14*18	18mm	25.0	30.0	132.5	
F1BB19M	14*18	19mm	25.0	31.3	144.6	
F1BB21M	14*18	21mm	25.0	33.7	151.5	
F1BB22M	14*18	22mm	25.0	35.4	153.5	
F1BB24M	14*18	24mm	25.0	37.8	161.9	
F1BB27M	14*18	27mm	31.0	41.6	204.9	
F1BB30M	14*18	30mm	31.0	45.1	204.1	
F1BB32M	14*18	32mm	31.0	47.7	213.8	
F1BB34M	14*18	34mm	31.0	51.0	225.5	
F1BB36M	14*18	36mm	31.0	53.5	230.0	
F1BB41M	14*18	41mm	31.0	59.7	222.0	
F1AB0104M	9*12	1/4"	17.5	20.0	37.4	
F1AB0516M	9*12	5/16"	17.5	20.0	37.0	
F1AB0308M	9*12	3/8"	17.5	20.0	39.5	
F1AB0716M	9*12	7/16"	17.5	20.4	42.0	
F1AB0102M	9*12	1/2"	17.5	22.3	51.3	
F1AB0916M	9*12	9/16"	17.5	23.5	52.9	
F1AB0508M	9*12	5/8"	17.5	26.5	56.2	
F1AB1116M	9*12	11/16"	17.5	28.8	60.0	
F1AB0304M	9*12	3/4"	17.5	31.2	53.4	
F1AB1316M	9*12	13/16"	17.5	33.2	58.2	
F1AB0708M	9*12	7/8"	17.5	35.2	70.6	
F1BB0102M	14*18	1/2"	25.0	30.0	129.6	
F1BB0916M	14*18	9/16"	25.0	30.0	132.1	
F1BB0508M	14*18	5/8"	25.0	30.0	137.0	
F1BB1116M	14*18	11/16"	25.0	30.0	132.5	
F1BB0304M	14*18	3/4"	25.0	31.3	144.6	
F1BB1316M	14*18	13/16"	25.0	33.7	151.5	
F1BB0708M	14*18	7/8"	25.0	35.4	153.5	
F1BB1516M	14*18	15/16"	25.0	37.8	161.9	
F1BB0100M	14*18	1"	31	41.6	204.9	

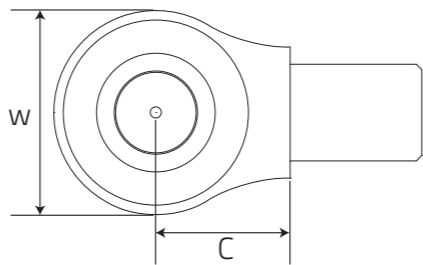


# F1

## Ratchet Insert Tools



SPECIFICATION	Item No.	□ mm	Size inch	C mm	W mm	Weight g
	F1AD0201M	9*12	1/4" DR.	17.5	24.7	70.0
F1AD0301M	9*12	3/8" DR.	17.5	30.5	100.0	
F1AD0401M	9*12	1/2" DR.	25.0	37.9	225.5	
F1BD0301M	14*18	3/8" DR.	25.0	37.9	241.0	
F1BD0401M	14*18	1/2" DR.	25.0	37.9	258.5	
F1BD0601M	14*18	3/4" DR.	25.0	41.0	338.0	

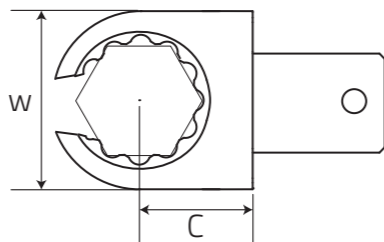


# F1

## Open-Ring Insert Tools

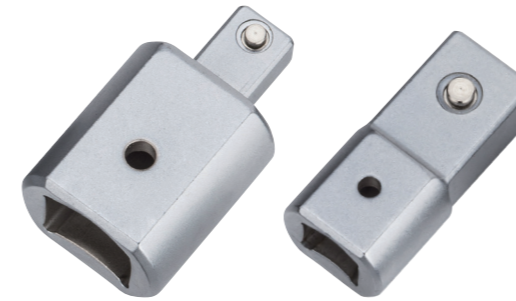


SPECIFICATION	Item No.	□ mm	Size mm	C mm	W mm	Weight g
	F1AC10M	9*12	10mm	17.5	23.0	52.4
F1AC11M	9*12	11mm	17.5	23.9	52.5	
F1AC12M	9*12	12mm	17.5	24.5	54.0	
F1AC13M	9*12	13mm	17.5	25.2	52.5	
F1AC14M	9*12	14mm	17.5	27.2	57.5	
F1AC16M	9*12	16mm	17.5	30.2	57.5	
F1AC17M	9*12	17mm	17.5	30.5	59.0	
F1AC18M	9*12	18mm	17.5	30.2	61.0	
F1AC19M	9*12	19mm	17.5	34.5	67.5	
F1AC21M	9*12	21mm	17.5	38.0	71.5	
F1AC22M	9*12	22mm	17.5	39.5	75.5	



# F1

## Joint Insert Tools



SPECIFICATION	Item No.	□ mm	Weight g
	F1AE01M	9*12 -> 14*18	115.0
F1BE01M	14*18 -> 9*12	82.0	

1. CR-V steel
2. Corrosion-Resistant Chrome Plated Finish

## BOLT LEVEL

SPECIFICATION	IM	mm	NM						
			4.6	5.8	6.8	8.8	9.8	10.9	12.9
M1.6	3.2	0.07	0.11	0.14	0.18	0.21	0.26	0.31	
M2	4	0.14	0.24	0.28	0.38	0.42	0.53	0.63	
M2.5	5	0.29	0.48	0.58	0.78	0.87	1.09	1.31	
M3	5.5	0.51	0.8	1.01	1.35	1.52	1.9	2.27	
M4	7	0.95	1.59	1.91	2.54	2.86	3.57	4.29	
M5	8	2.28	3.8	4.56	6.09	6.85	8.56	10.3	
M6	10	3.92	6.54	7.85	10.5	11.8	14.7	17.7	
M8	13	9.48	15.8	19	25.3	28.4	35.5	42.7	
M10	17	19.1	31.8	38.1	50.8	57.2	71.5	85.8	
M12	19	32.6	54.3	65.1	86.9	97.7	122	147	
M14	22	52	86.6	104	139	156	195	234	
M16	24	79.9	133.0	160	213	240	299	359	
M18	27	110	183.0	220	293	330	413	495	
M20	30	156	260	312	416	468	585	702	
M22	32	211	352	422	563	634	792	950	
M24	36	270	449	539	719	809	1011	1213	
M27	41	398	663	795	1060	1193	1491	1789	
M30	46	540	900	1080	1440	1620	2025	2430	
M33	50	734	1223	1467	1956	2201	2751	3301	
M36	55	944	1573	1888	2517	2832	3540	4248	
M39	60	1226	2043	2452	3269	3678	4597	5517	
M42	65	1518	2530	3036	4049	4555	5693	6832	
M45	70	1900	3167	3800	5067	5701	7126	8551	
M48	75	2288	3813	4576	6101	6864	8580	10296	
M52	80	2947	4912	5895	7859	8842	11052	13263	
M56	85	3650	6083	7300	9733	10950	13687	16425	
M60	90	4538	7564	9076	12102	13614	17018	20422	
M64	95	5466	9110	10932	14576	16398	20498	24597	
M68	100	6617	11029	13234	17646	19851	24814	29777	

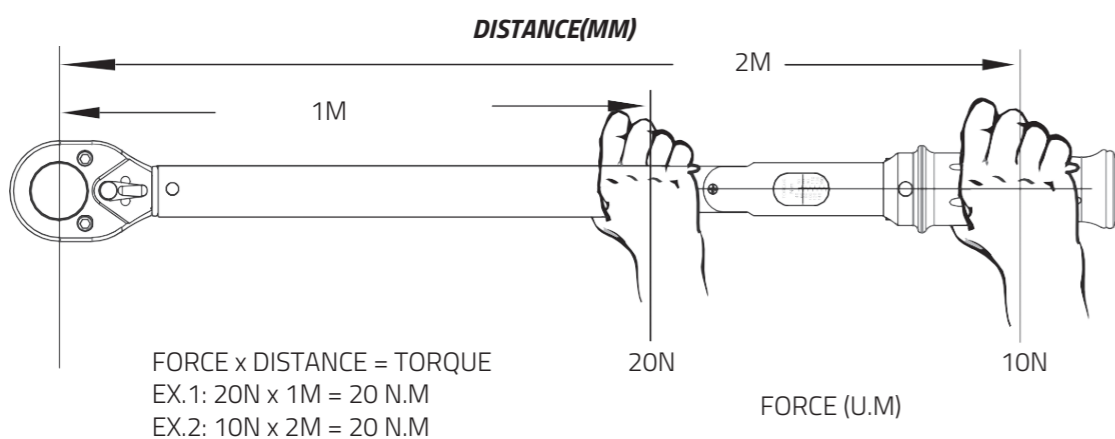


TO CONVERT

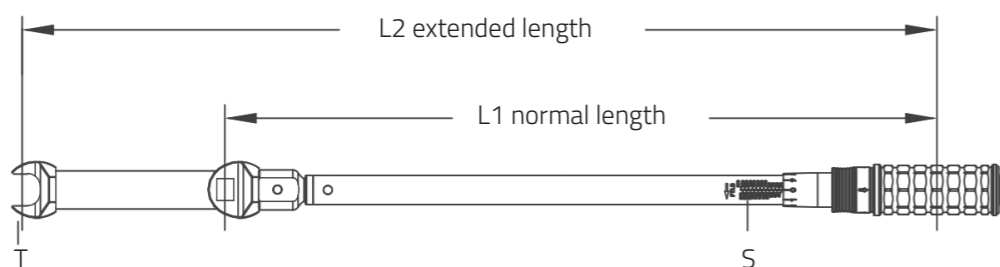
Form	To	Multiply By
in-oz	in-lb	0.0625
in-lb	in-oz	16
in-lb	ft-lb	0.08333
in-lb	kg-cm	1.15212
in-lb	kg-m	0.01152
in-lb	cNm	11.2984
in-lb	Nm	0.11298
ft-lb	in-lb	12
ft-lb	kg-cm	13.8254
ft-lb	kg-m	0.13825
ft-lb	cNm	135.581
ft-lb	Nm	1.35581

Form	To	Multiply By
cNm	in-lb	0.0885
cNm	ft-lb	0.00737
cNm	Nm	0.01
Nm	in-lb	8.85074
Nm	ft-lb	0.73756
Nm	kg-cm	10.19716
Nm	kg-m	0.10197
Nm	cNm	100
kg-cm	in-lb	0.86796
kg-cm	ft-lb	0.07233
kg-cm	Nm	0.09806
kg-m	in-lb	86.7961
kg-m	ft-lb	7.23301
kg-m	Nm	9.80665

FORMULA



EXTENDED LENGTH



L1 normal length      T: Desired tightening torque  
 L2 extended length    S: Setting scale

$$S = \frac{T \times L1}{L2}$$

\* Make sure keep hand centered on the handle, to get actual torque.

