

Test report: Machinery capability investigation
from industry screwdriver



C. & E. FEIN GmbH
Schwäbisch Gmünd
Hans-Fein-Str. 81, D-73529 Schwäbisch Gmünd-Bargau

Maschine typ : Angle head screwdriver Date : 02.09.2025

Model variant : ASW 18-60 PC

Product number : 71126400940

Manufacturer : C.&E. Fein GmbH

Stage of development: Series

MCI - Typ : Homologation

Number of steps : 1-step

Test bench - ID : SCS FTY.0299

Screw connection class : 2

Fitting tolerance : 10,0%

1	2	3	4	5	6
5,0%	10,0%	12,0%	15,0%	20,0%	25,0%

Torque range : $M_{min} = 25,00$ Nm $M_{max} = 60,00$ Nm

Idle speed : $n = 100$ min⁻¹ Weight incl. Battery : $m = 2,35$ kg

Battery voltage : $U = 18,0$ V Sound pressure level : $L_{pA} = <81$ dB(A)

Battery capacity : $Q = 5200$ mAh Undervoltage detection : ☒

Torque range investigation : Testing machine : 3 Stück

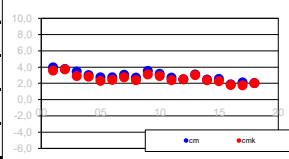
$30\% \rightarrow M_{30\%} = M_{min} + 30\% \times (M_{max} - M_{min}) = 35,50$ Nm
 $80\% \rightarrow M_{80\%} = M_{min} + 80\% \times (M_{max} - M_{min}) = 53,00$ Nm
 $M_{max} = 100\% \rightarrow M_{100\%} = M_{min} + 100\% \times (M_{max} - M_{min}) = 60,00$ Nm

Information on all 3 test items

Load level		30%		80%		100%	
Test torque	$M_d =$	35,50		53,00		60,00	
Joints		hard	soft	hard	soft	hard	soft
		30°	360°	30°	360°	30°	360°
$c_{m \min} =$		2,46	3,03	1,86	2,52	2,01	2,09
$c_{mk \min} =$		2,36	2,74	1,77	2,24	2,00	1,74

Name :		Date :	
Carried out by	:	L. Feldnick	28.08.2025
Test report prepared by	:	D. Schimpf	02.09.2025



Testbench Measuring					MCS for FEIN-Project : 3					Homologation			Date: 02.09.2025			
ASW 18-60 PC					ScrewdriverType ASW		Accuracy-Class 10,0%		Class : 2		f _{mess} = 300 Hz		M _{min}		M _{max}	
					Variant:		18-60 PC						M _{range} = 25,00		up to 60,00 Nm	
													n _{given} = 100 rpm		U = 18,00 V	
													cycles: 100			
MCSs	M _d [Nm]	Angle [°]	M _q [Nm]	ΔM _{q 1/2} [Nm]	s [Nm]	C _m [1]	C _{mk} [1]	n [min ⁻¹]	Remarks							
1	35,50	360°	35,863	0,318	0,299	3,96	3,55	99	71126400940	2025-02.0000001	30%					
1	35,50	30°	35,545		0,317	3,74	3,69	91								
1	53,00	360°	53,849	0,479	0,514	3,44	2,89	101			80%					
1	53,00	30°	53,370		0,588	3,00	2,79	97								
1	60,00	360°	60,993	0,254	0,734	2,73	2,28	95			100%					
1	60,00	30°	60,739		0,731	2,74	2,40	95								
2	35,50	360°	35,163	0,790	0,391	3,03	2,74	97	71126400940	2025-02.0000002	30%					
2	35,50	30°	35,953		0,438	2,70	2,36	89								
2	53,00	360°	53,651	0,204	0,503	3,51	3,08	97			80%					
2	53,00	30°	53,447		0,562	3,15	2,88	89								
2	60,00	360°	60,705	0,660	0,745	2,68	2,37	99			100%					
2	60,00	30°	60,045		0,802	2,49	2,47	93								
3	35,50	360°	35,567	0,191	0,386	3,06	3,01	99	71126400940	2025-02.0000003	30%					
3	35,50	30°	35,376		0,481	2,46	2,37	93								
3	53,00	360°	53,592	0,863	0,701	2,52	2,24	99			80%					
3	53,00	30°	52,729		0,949	1,86	1,77	88								
3	60,00	360°	60,997	0,963	0,958	2,09	1,74	97			100%					
3	60,00	30°	60,034		0,993	2,01	2,00	91								
Start of measurement: 09:00																
End of measurement: 16:00																
Homologation: 3 Machines out of a series, each 30%, 80% and 100% the torque-ranges.																
Waiting time between load changes see specification VDI 2647 February 2013 Homologation.																
Series of measurement per machine, Nominal Torque and Screwinghardness each 100 Load changes (LW).																
Measurement based on VDI 2647 February 2013																
C _{m min} = 1,86		C _{m q} = 2,84		C _{m max} = 3,96		s _{cm} = 0,564										
C _{mk min} = 1,74		C _{mk q} = 2,59		C _{mk max} = 3,69		n _{MFU} = 18										
Name: D. Schimpf				Project: 3 : ASW 18-60 PC												
C. & E. FEIN GmbH				Stage of Development :												
Schwäbisch Gmünd				Series												
								C _{m min} = C _m - Minimum Value								
								C _{m min} = C _m - Minimum Value								
								C _m - Minimum Value								
								C _{m q} = C _m - Mid Value								
								C _{mk q} = C _{mk} - Mid Value								
								C _m - Mid Value								
								C _{m max} = C _m - Maximum Value								
								C _{mk max} = C _{mk} - Maximum Value								
								C _m - Maximum Value								
								C _{mk} - Maximum Value								
								s _{cm} = C _m - Standard deviation								
								s _{cmk} = C _{mk} - Standard deviation								
								n _{MCS} = No. of Machine Capability Study (MCS)								
								v = correction Value								