

Appendix 1. The Optimum Values of FSW Parameters Obtained from the Optimization Processes

Reference	Optimum Levels Parameters**											
	RS	TS	AF	PP	TA	D/d ratio	SD	Pd	PD	PL	TO	BMS
Reference ^[4]	1225	21		1*	2	3			0.1			AS
Reference ^[5]	1000	290			0	2.5				2.85		
Reference ^[6]	1320	60		2*								
Reference ^[7]	1000	65			2.5							
Reference ^[8]	900	20		3*	1						1.5	
Reference ^[9]	1100	60		4*								
Reference ^[10]	500	50										
Reference ^[11]	2200	90							0.1			
Reference ^[12]	1200	40			1							
Reference ^[13]	600	65		5*	1.5							
Reference ^[14]	1800	30					10.3	2.4				
Reference ^[15]	1500	40			1.5		6					
Reference ^[16]	1100	58	6									
Reference ^[17]	650	115	9									
Reference ^[18]	1800	180			1					2.9		
Reference ^[19]	1200	20		4*								
Reference ^[20]	1000	45	6	6*	2							
Reference ^[21]	850	20			2							
Reference ^[22]	1000	90	4									
Reference ^[23]	700	15		6*		3						
Reference ^[24]	1035	37.5			2							
Reference ^[25]	900	60					18	6				
Reference ^[26]	1100	28			1							
Reference ^[27]	950	110										
Reference ^[28]	513	95					16.1	6				
Reference ^[29]	1200	100			2						0	
Reference ^[30]	765	50			2.5							
Reference ^[31]	3250	205		4*								
Reference ^[32]	1200	15		7*								
Reference ^[33]	1700	90	3	4*								
Reference ^[34]	1550			8*	4							
Reference ^[35]	950	25	3.4									
Reference ^[36]	950	63	14.7	4*								
Reference ^[37]	800	60							0.25			
Reference ^[38]	1400	37.5		5*								
Reference ^[39]	1100	300		9*	3							
Reference ^[40]	5000	300							0.25			
Reference ^[41]	1233	107					12.8	1.8				
Reference ^[42]	900	250		7*								
Reference ^[43]	1400	45	6									
Reference ^[44]	1200	72	7									
Reference ^[45]	500	200										
Reference ^[46]	1000	17		1*	2	4			0.25			AS
Reference ^[47]	1100	98					24		0.12			
Reference ^[48]	1200	90	5				20	6				

** Discover abbreviations on the complete list of abbreviations.
1* Cylindrical Tapered; 2* Cylindrical; 3* Hybrid Square; 4* Square; 5* Tapered; 6* Threaded Cylinder; 7* Triangular; 8* Octagonal; 9* Tapered Truncated Cone; 10* Hexagonal.
Units: RS: RPM; TS: mm/min; AF: KN; PP : Shape; TA: °; D/d ratio -; SD: mm; Pd: mm; PD: mm; PL: mm; TO: mm; BMS: CW,CCW; NOP: #; SC: °.