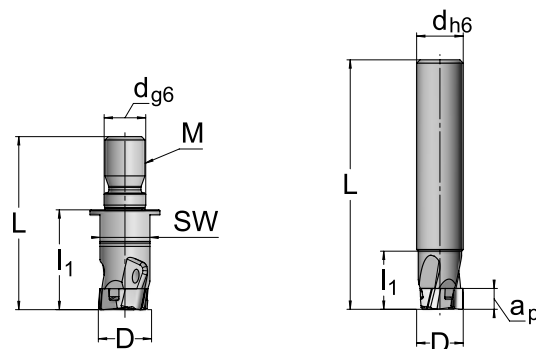


# SHOULDER MILLING CUTTERS

## TS90



Alternative to carbide shank end milling cutters in combination with small depths of cut  
 Utmost change accuracy  
 Form and force locking cross and/or star drive keys  
 Ensures maximum smooth cutting



### TS90 Smooth shank tool holders

Article	D	dg6	L	l1	lc	kg	INS
20G.14.1412.01	14	14	75	18	no	0.10	ECE1406.R
20G.14.1432.01	14	14	93.1	36	yes	0.10	ECE1406.R
20G.16.1612.01	16	16	82	22	no	0.12	ECE1606.R
20G.16.1632.01	16	16	104.1	44	yes	0.14	ECE1606.R
20G.18.1813.01	18	18	84	23	yes	0.15	ECE1808.R
20G.18.1833.01	18	18	108	47	yes	0.20	ECE1808.R
20G.20.2013.01	20	20	92	26	yes	0.20	ECE2008.R
20G.20.2033.01	20	20	118	52	yes	0.26	ECE2008.R

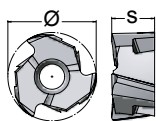
### TS90 Screw-in tool holders

Article	D	dg6	L	l1	M	SW	lc	kg	INS
20K.12.1312.01	14	12.5	30	19	12	15	yes	0.10	ECE1406.R
20K.12.1512.01	16	12.5	30	19	12	15	yes	0.12	ECE1606.R
20K.12.1713.01	18	12.5	30	21	12	15	yes	0.15	ECE1808.R
20K.12.1913.02	20	12.5	30	21	12	17	yes	0.20	ECE2008.R

### Data Interchangeable heads ECE

Article	D	Zeff	ap	Weight in g
EC.E1406.32.01 SKY77	14	3	6.0	5.9
EC.E1606.32.01 SKY77	16	3	6.0	7.9
EC.E1808.33.01 SKY77	18	3	8.0	10.9
EC.E2008.33.01 SKY77	20	3	8.0	13.6

# INTERCHANGEABLE HEADS EC



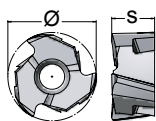
ECE						
AS	Ø				s	
3	14	16	18	20	06	08
	14	16	18	20	6	8

Matching of machining parameters  
with the AV material groups

				Steel						
	Article	Designation		A22	A21	A20	A19	A18	A17	A16
ECE1406..	EC.E1406.32.01 SKY77	ECE 140606 TR-25	$h_{max}$	0.15	0.15	0.12	0.12	0.10	0.10	0.08
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110
ECE1606..	EC.E1606.32.01 SKY77	ECE 160608 TR-25	$h_{max}$	0.15	0.15	0.12	0.12	0.10	0.10	0.08
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110
ECE1808..	EC.E1808.33.01 SKY77	ECE 180808 TR-25	$h_{max}$	0.20	0.17	0.14	0.12	0.10	0.10	0.08
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110
ECE2008..	EC.E2008.33.01 SKY77	ECE 200810 TR-25	$h_{max}$	0.20	0.17	0.14	0.12	0.10	0.10	0.08
			$v_c$	280-320	240-280	210-240	180-210	140-180	110-140	80-110

				Cast iron					
	Article	Designation		D21	D20	D19	D18	D17	D16
ECE1406..	EC.E1406.32.01 SKY77	ECE 140606 TR-25	$h_{max}$	0.18	0.15	0.12	0.12	0.10	0.08
			$v_c$	290-340	270-300	240-280	210-240	180-210	140-180
ECE1606..	EC.E1606.32.01 SKY77	ECE 160608 TR-25	$h_{max}$	0.18	0.15	0.12	0.12	0.10	0.08
			$v_c$	290-340	270-300	240-280	210-240	180-210	140-180
ECE1808..	EC.E1808.33.01 SKY77	ECE 180808 TR-25	$h_{max}$	0.18	0.15	0.12	0.12	0.10	0.08
			$v_c$	290-340	270-300	240-280	210-240	180-210	140-180
ECE2008..	EC.E2008.33.01 SKY77	ECE 200810 TR-25	$h_{max}$	0.18	0.15	0.12	0.12	0.10	0.08
			$v_c$	290-340	270-300	240-280	210-240	180-210	140-180

# INTERCHANGEABLE HEADS **EC**



ECE						
AS	Ø				s	
3	14	16	18	20	06	08
	14	16	18	20	6	8

Matching of machining parameters  
with the AV material groups

	Article	Designation		Stainless steels				NF metals		
				C12	C11	C10	C09	E82	E81	E80
ECE1406..	EC.E1406.32.01 SKY77	ECE 140606 TR-25	$h_{max}$	0.12	0.10	-	-	0.22	0.18	0.15
			$v_c$	120-200	100-160	-	-	650-1000	450-650	280-450
ECE1606..	EC.E1606.32.01 SKY77	ECE 160608 TR-25	$h_{max}$	0.12	0.10	-	-	0.22	0.18	0.15
			$v_c$	120-200	100-160	-	-	650-1000	450-650	280-450
ECE1808..	EC.E1808.33.01 SKY77	ECE 180808 TR-25	$h_{max}$	0.12	0.10	-	-	0.22	0.18	0.15
			$v_c$	120-200	100-160	-	-	650-1000	450-650	280-450
ECE2008..	EC.E2008.33.01 SKY77	ECE 200810 TR-25	$h_{max}$	0.12	0.10	-	-	0.22	0.18	0.15
			$v_c$	120-200	100-160	-	-	650-1000	450-650	280-450

## INS



ECE1406...	08B.3511.7991	TX215
ECE1606...	08B.3511.7991	TX215
ECE1808...	08B.0516.7991	TX220
ECE2008...	08B.0516.7991	TX220