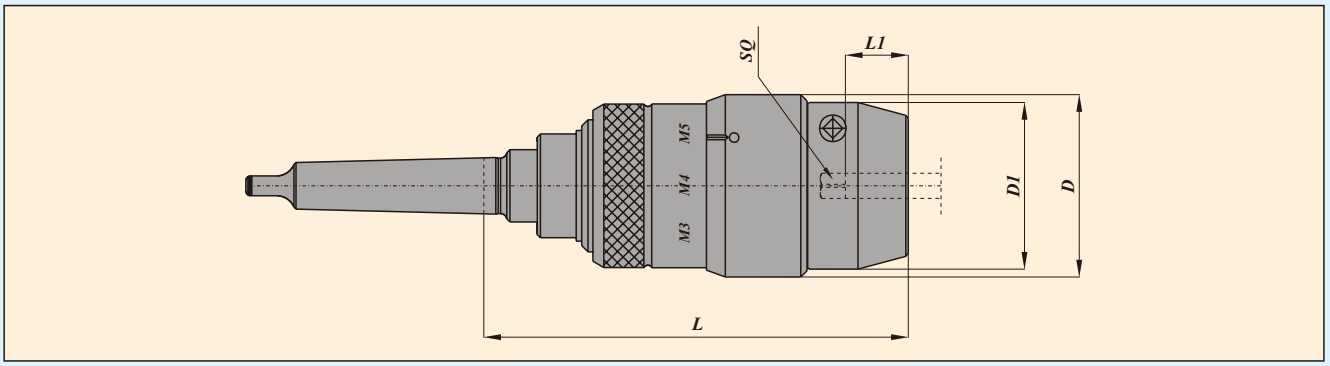
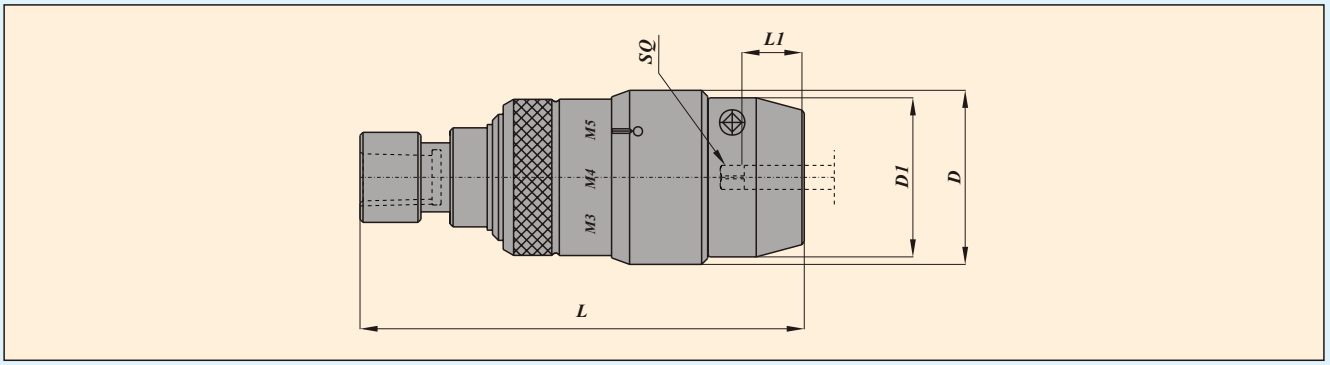
TSFL / MORSE TAPER



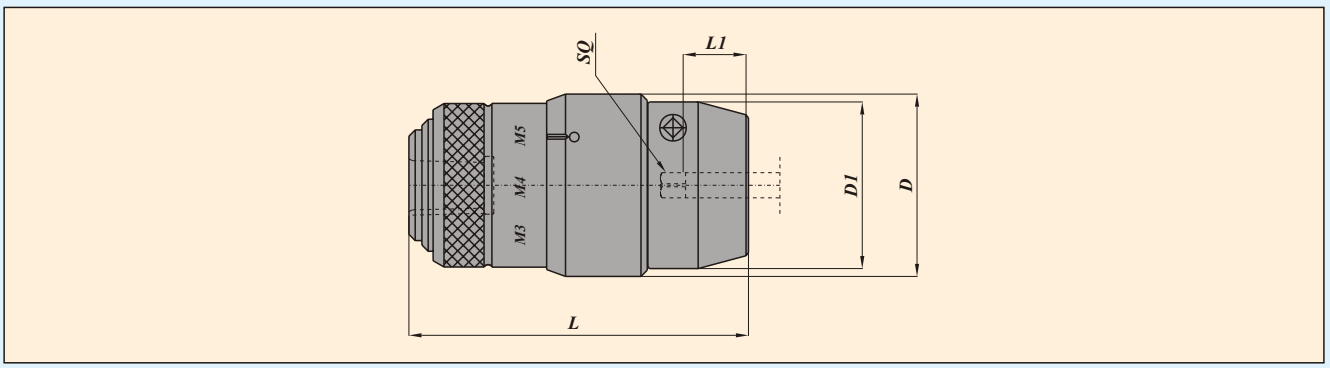
Chuck Designation Size Location	Clamping Range		Taps			Float	Length Comp.		D dia.	D1 dia	L	L1	Weight app. Kgs.
	Shank dia	Square	Metric	Whitworth	Whitworth pipe		Compr.	Expan.					
TSFL 3-12/MT2 TSFL 3-12/MT3	2.5-10	0-8	3-12	1/8-1/2	1/8	1	10	20	58	53	135 135	18-20	1.7 1.9
TSFL 8-20/MT3 TSFL 8-20/MT4 TSFL 8-20/MT5	6-16	4.7-12	8-20	1/4-3/4	1/8-1/2	1.5	10	20	83	76	170 171 172	23-28	4.6 4.9 5.1

TSFL / SHORT MORSE TAPER INTERNAL (B..) Jacob Taper



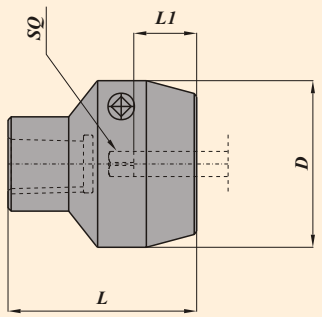
Chuck Designation Size Location	Clamping Range		Taps			Float	Length Comp.		D dia.	D1 dia	L	L1	Weight app. Kgs.
	Shank dia	Square	Metric	Whitworth	Whitworth pipe		Compr.	Expan.					
TSFL 3-12/B12 TSFL 3-12/B16	2.5-10	0-8	3-12	1/8-1/2	1/8	1	10	20	58	53	148 148	18-20	1.7 1.9
TSFL 8-20/B22 TSFL 8-20/B24	6-16	4.7-12	8-20	1/4-3/4	1/8-1/2	1.5	10	20	83	76	188 190	23-28	4.6 4.9

TSF / SHORT MORSE TAPER INTERNAL (B..) Jacob Taper



Chuck Designation Size Location	Clamping Range		Taps			Float	D dia.	D1 dia	L	L1	Weight app. Kgs.
	Shank dia	Square	Metric	Whitworth	Whitworth pipe						
TSF 3-12/B12 TSF 3-12/B16	2.5-10	0-8	3-12	1/8-1/2	1/8	1	58	53	108	18-20	1.4 1.6
TSF 8-20/B18 TSF 8-20/B22	6-16	4.7-12	8-20	1/4-3/4	1/8-1/2	1.5	83	76	142	23-28	4.3 4.4

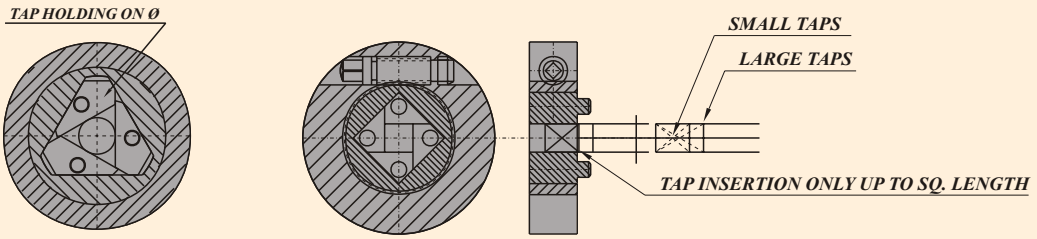
T / SHORT MORSE TAPER INTERNAL (B..) Jacob Taper



Chuck Designation Size Location	Clamping Range		Taps			D dia	L	L1	Weight app. Kgs.
	Shank dia	Square	Metric	Whitworth	Whitworth pipe				
T 3-12/B12 T 3-12/B16	2.5-10	0-8	3-12	1/8-1/2	1/8	53	60	18-20	0.6
T 8-20/B18 T 8-20/B22	6-16	4.7-12	8-20	1/4-3/4	1/8-1/2	76	79 88	23-28	1.6 1.7

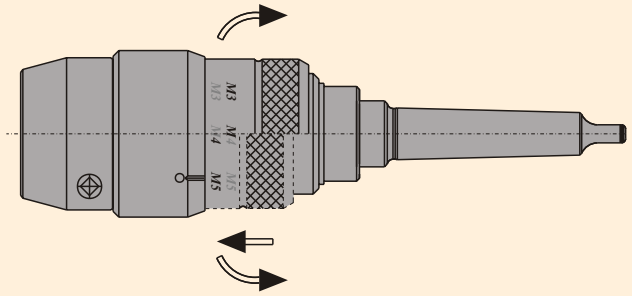
OPERATIONAL GUIDANCE FOR KTA TAPPING ATTACHMENTS

TAP CLAMPING



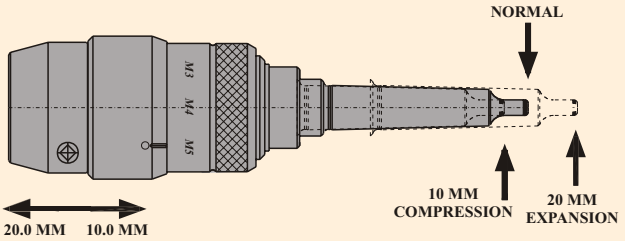
Clamp tap properly and confirm that it is clamped in ***four jaws.***
Excess tightening may damage worm & worm wheel mechanism.
(Model TSFL : Small taps where square length in less than 8mm, please pull the tap by 3mm and clamp.)
(Indication : Tap should not rotate in 360 degree. This is for positive drive.)

TORQUE SETTING



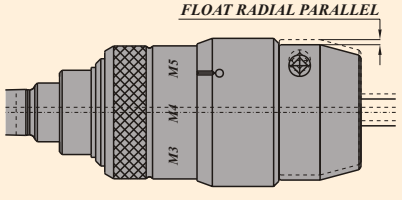
Set Torque values as per tap clamped.
(This is for safety of tap.)

LENGTH COMPENSATION



- For maintenance free long life, Never pull or push, spindle excessively, while tapping.
- Length compensation i.e. compression and expansion can take care of small pull or push to the spindle or feed difference.

ALIGNMENT



Align (approximately), pre-drilled hole and go for tapping,
Radial Parallel Float will take care of small misalignments.

CLEANLINESS

- For maintenance free long life, maintain cleanliness and lubricate your attachment frequently.
- You can wash your attachment with kerosene, by simply dipping it into the kerosene and applying some compressed air and then apply some oil for lubrication.
- Use tapping oil for better performance and longer tool life.

OPERATING INSTRUCTIONS

APPLICATION : Can be universally used for TAPPING operations on reversible Drilling Machines, Tapping Machines, Radial Drilling, Lathes and similar, applications in a vertical and horizontal position.

DESIGN & WORKING PRINCIPLE

T : TWIN CHUCKING FEATURE : The both set of Jaws (Triangular (4) and Square JAWS (5)) are being actuated by the use of handle (43) at the same time. The two set of jaws move independently of each other. When clamping the Tap, please observe that the square of the tap is not inserted across the corners of the square jaw set. Small taps, where square is shorter than the height of the square jaw set (8.00 mm), must be pulled somewhat out before clamping.

The Twin Chucking Mechanism provides high clamping power, therefore light clamping with handle is required. Do not give excessive force with handle as it is not necessary.

S : SAFETY CLUTCH : To adjust the torque, the torque adjusting sleeve (17) is being moved downward in to the direction of the floating piece and is then set to scale by turning the sleeve. The safety clutch disengages when the preset torque is exceeded. After disengagement there is almost no torque on the tap. While reversing the spindle the clutch is re-engaged and the tap is automatically turned out of the thread. The clutch is suitable for the constant bottoming of the tap. Due to the small remaining torque on the tap there is practically no wear on the clutch and thus re adjustment is rarely required. The standard tapping attachments are suitable for right handed threads only. However the clutch also operates during left handed operation but this increases the torque by approximately 100%. The clutch then works on the principle of an over roll clutch, hence we do not recommend the right handed attachment for left handed threads.

F : FLOAT RADIAL PARALLEL : To compensate the misalignment between tap and component in order to cut threads to exact tolerance and to protect the tap. Automatic centering actions after each tapping operation. No time consuming alignment of tap with center of hole. The plane-parallel guidance and the centering of the floating head is effected by steel balls.

L : LENGTH COMPENSATION : The length compensation working on compression and expansion, is exactly positioned in a Zero-position and is thus suited to tap to exact depth when under machine feed. The compression spring (32) is stronger than the one for expansion (33). If during machine feed, the feed cannot be adjusted exactly to the pitch of the tap, we suggest to adjust 10% smaller than the tap pitch. The ball sleeve (42) is located between shank (20) and clutch housing (16). This ball sleeve assures even under high torques a very light compensation in axial direction. This free axial movement prevents damage to thread flanks if the feed is not exact.

DISASSEMBLY :

TWIN CHUCKING FEATURE : The cover plate (8) and the triangular guide (2) have a left hand thread. Cover plate (8) is being removed by the use of and adjustable pin wrench, the triangular guide (2) by using KTA Triangular wrench, the jaw sets (4) and (5) fitted together and should therefore be completely replaced if repairs are required. The way of removing worm wheel (6) and screw and nut (7) is different for the different tapping attachments. For attachment size TSFL 3-12 turn worm screw (7) until the worm wheel (6) positions at the marking "X" of the worm screw to disassemble. For TSFL 8-20 it is not necessary to turn the worm wheel (6) in this case loosen worm wheel (6) and remove it. Nut on worm screw (7) is loosened with regular handle and special screw driver.

SAFETY CLUTCH : Remove external snap ring (38) take out retaining sleeve (19) with threaded sleeve (18) and torque sleeve (17), also remove steel balls (28) and (29), disc spring (39) and thrust ring (15). The internal snap ring (36) is being pushed in by way of the radial bore in housing (14) and is then removed. Remove steel balls (29) pull clutch housing (16) complete with shank (20) out of housing (14). Remove steel balls (27).

FLOATING PIECE : Disassemble safety clutch. Remove steel ball (26) and compression spring (31). Disassemble ring nut (11), remove thrust ball ring (41), Clutch Plate (13) Thrust Needle Bearing (40) Thrust washer (12) Housing (14) Disc Ball Guide (10) Steel Ball (25) and Driving Plate (9).

LENGTH COMPENSATION : Disassemble safety clutch, loose screw (23) with screw driver, In order to loosen special screw (23) which is sealed with loctite, parts have to be warmed upto 150 degree centigrade.

ATTENTION! Compression spring (32) is pre-loaded pull shank (20) with ball sleeve (42) out of clutch housing (16). The steel ball of the ball sleeve when assembled are under pressure between shank (20) and clutch housing (16). Remove Compressing Spring (32) take out internal snap ring (35). **ATTENTION!** Compression Spring (33) is also preloaded. Take special screw (23), spring seat (22), spring retainer (21) and compression spring (33) out of shank (20).

ASSEMBLY :The assembly of the attachment is effected vice-verse. Floating piece and safety clutch should be oiled with Molycote - Oil M55 Plus. The length compensation is oiled.

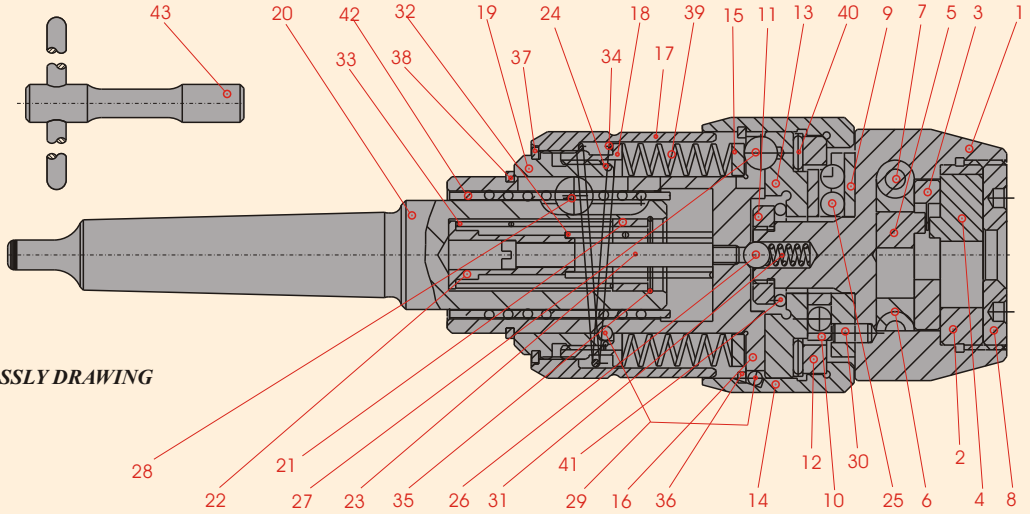
Adjustment of Safety Clutch : The clutch adjusted under following Torques :

- TSFL 3-12 at M 8 to 8 Nm.
- TSFL 8-20 at M 16 to 45 Nm.

Adjust clutch with Torque wrench to the above values. Remove snap ring (37) Push torque Sleeve (17) axially in to the direction of shank (20) out of its serration. Now turn sleeve (17) until scale value and Zero marking is matched. Push Torque Sleeve (17) in to serration again and put snap ring (37).

FOR POSSIBLE REPAIRS, WE SUGGEST TO SEND TAPPING ATTACHMENT TO OUR FACTORY.

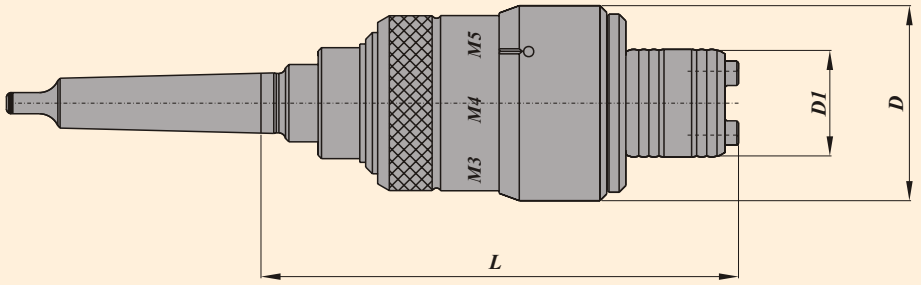
TAPPING ATTACHMENT SPARE PARTS LIST : TYPE TSFL



TSFL 312 ASSLY DRAWING

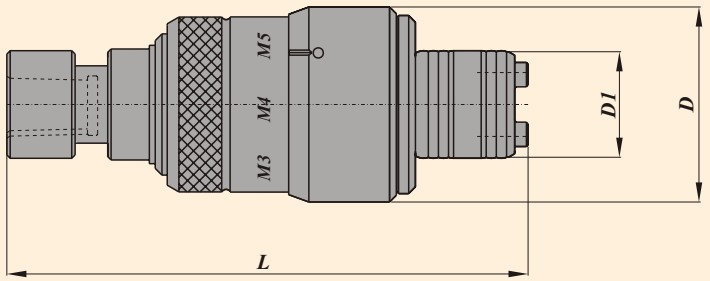
Sr. No.	Description	Type TSFL - 3 - 12	No. OFF	Type TSFL - 8 - 20	No. OFF
1.	Floating Piece	31201	1	82001	1
2.	Triangular Guide	31202	1	82002	1
3.	Compensating Disc	31203	1	82003	1
4.	Triangular Grip	31204	3	82004	3
5.	Square Grip	31205	4	82005	4
6.	Guide Worm Wheel	31206	1	82006	1
7.	Worm Screw & Nut	31207	1	82007	1
8.	Cover Plate	31208	1	82008	1
9.	Drive Plate	31209	1	82009	1
10.	Disc Ball Guide	31210	1	82010	1
11.	Ring Nut	31211	1	82011	1
12.	Thrust Washer	31212	1	82012	1
13.	Clutch Plate	31213	1	82013	1
14.	Housing	31214	1	82014	1
15.	Thrust Ring	31215	1	82015	1
16.	Clutch Housing	31216	1	82016	1
17.	Torque Sleeve	31217	1	82017	1
18.	Threaded Sleeve	31218	1	82018	1
19.	Retaining Sleeve	31219	1	82019	1
20.	Shank	31220	1	82020	1
21.	Spring Retainer	31221	1	82021	1
22.	Spring Seat	31222	1	82022	1
23.	Special Screw	31223	1	82023	1
24.	External Snap Ring	31224	1	82024	1
25.	Steel Ball	31225	12	82025	12
26.	Steel Ball	31226	1	82026	1
27.	Steel Ball	31227	3	82027	3
28.	Steel Ball	31228	3	82028	3
29	Steel Ball	31229	2	82029	2
30.	Dowel Pin	31230	2	82030	2
31.	Compression Spring	31231	1	82031	1
32.	Compression Spring	31232	1	82032	1
33.	Compression Spring	31233	1	82033	1
34.	Compression Spring	31234	1	82034	1
35.	Internal Snap Ring	31235	1	82035	1
36	Internal Snap Ring	31236	1	82036	1
37.	External Snap Ring	31237	1	82037	1
38.	External Snap Ring	31238	1	82038	1
39.	Belleville Spring	31239	12	82039	11
40.	Thrust Needle Bearing	31240	1	82040	1
41.	Thrust Ball Ring	31241	1	82041	1
42.	Ball Sleeve	31242	1	82042	1
43.	Handle	31243	1	82043	1
44.	Spring Seat (not shown in drg.)	-	-	82044	1

QSFL / MORSE TAPER



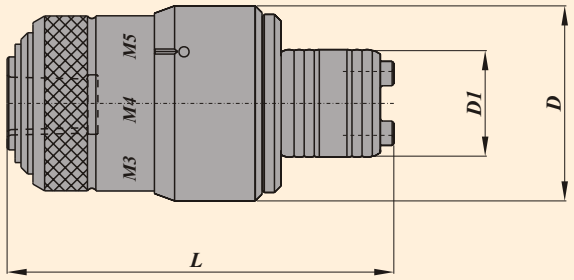
Chuck Designation		For Taps	Suitable Adaptors KWE Size	Length Comp.		Float	D2 dia.	D1 dia.	L	approx. Weight kgs.
Size	Location			Compr.	Expan.					
QSFL 3-12 / MT 2 QSFL 3-12 / MT 3		M 3 - M12	KWE1	10	20	1	58	32	142	1.4 1.6
QSFL 8-20 / MT 3 QSFL 8-20 / MT 4 QSFL 8-20 / MT 5		M 8 - M 20	KWE2	10	20	1.5	83	50	190 191 192	4.1 4.4 4.6

QSFL / SHORT MORSE TAPER INTERNAL (B..) Jacob Taper



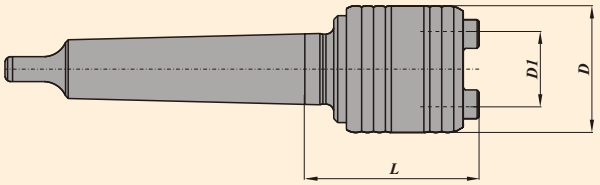
Chuck Designation		For Taps	Suitable Adaptors KWE Size	Length Comp.		Float	D2 dia.	D1 dia.	L	approx. Weight kgs.
Size	Location			Compr.	Expan.					
QSFL 3-12 / B12 QSFL 3-12 / B16		M 3 - M12	KWE1	10	20	1	58	32	155	1.4 1.6
QSFL 8-20 / B22 QSFL 8-20 / B24		M 8 - M 20	KWE2	10	20	1.5	83	50	208 212	4.1 4.4

QSF / SHORT MORSE TAPER INTERNAL (B..) Jacob Taper



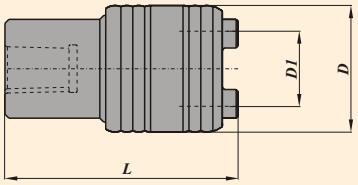
Chuck Designation		For Taps	Suitable Adaptors KWE Size	Float	D2 dia.	D1 dia.	L	approx. Weight kgs.
Size	Location							
QSFL 3-12 / B12 QSFL 3-12 / B16		M 3 - M12	KWE1	1	58	32	115	1.4 1.6
QSFL 8-20 / B22 QSFL 8-20 / B24		M 8 - M 20	KWE2	1.5	83	50	149 152	4.1 4.4

Q / MORSE TAPER



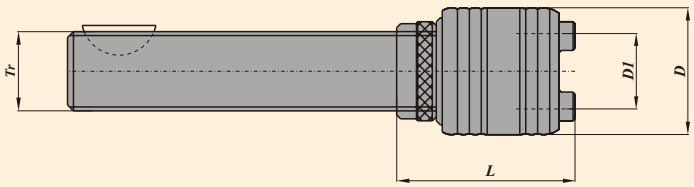
Chuck Designation		Capacity	Suitable Adaptors KWE & KWES B Size	D	D1	MT1	MT2	MT3	MT4
Size	Location					L	L	L	L
Q 3-12 / MT...		M3 - M12	KWE1/ KWES1B	32	19	43	44	-	-
Q 8-20 / MT...		M8 - M20	KWE2/ KWES2B	50	31	-	61	61	62

Q SHORT INTERNAL TAPER (B..)



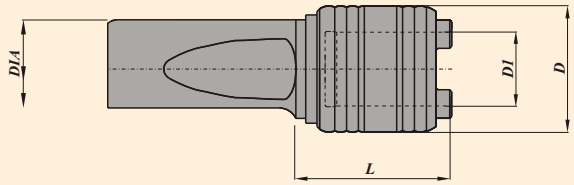
Chuck Designation		Capacity	Suitable Adaptors KWE & KWES B Size	D	D1	B12	B16	B18	B22
Size	Location					L	L	L	L
Q 3-12 / B...		M3 - M12	KWE1/ KWES1B	32	19	59	65	73	-
Q 8-20 / B...		M8 - M20	KWE2/ KWES2B	50	31	-	84	92	101

Q / TR .. (DIN 6327)



Chuck Designation		Capacity	Suitable Adaptors KWE & KWES B Size	D	D1	Tr16	Tr20	Tr28	Tr36
Size	Location					L	L	L	L
Q 3-12 / Tr...		M3 - M12	KWE1/ KWES1B	32	19	49	49	49	-
Q 8-20 / Tr...		M8 - M20	KWE2/ KWES2B	50	31	-	66	66	68

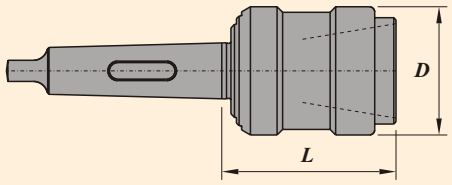
Q WELDON



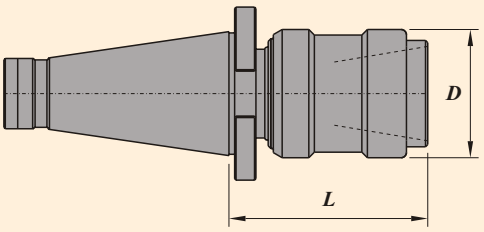
Chuck Designation		Capacity	Suitable Adaptors KWE & KWES B Size	D	D1	3/4"	1"	25mm	32mm
Size	Location					L	L	L	L
Q 3-12 / DIA...		M3 - M12	KWE1/ KWES1B	32	19	44	44	44	44
Q 8-20 / DIA...		M8 - M20	KWE2/ KWES2B	50	31	-	61	61	61

QUICK CHANGE DRILLING AND TAPPING CHUCK

Chuck Type QCDTC../MT..



Adpator Type QCDTC../ISO..

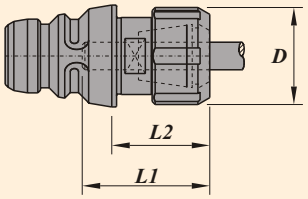


Chuck Size	Suitable Adaptor	D Dia.	Morse Taper				ISO Taper	
			MT2 L	MT3 L	MT4 L	MT5 L	ISO 40 L	ISO 50 L
QCDTC 2	SIZE 2	50	75	75	-	-	96	-
QCDTC 3	SIZE 3	60	-	88	89	-	109	99
QCDTC 4	SIZE 4	72	-	-	102	102	122	112

Ordering Example : KTA Chuck QCDTC 3/MT3

Ordering Example : KTA Chuck QCDTC 3/ ISO 50

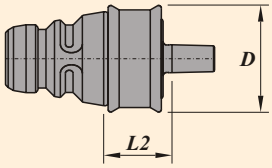
Adaptor Type QCCCA../E..



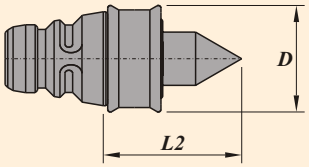
Adaptor Size	Suitable Adaptor	D Dia.	Tool Insertion Length L1		RD 16/E16 Collet 1-10 mm. L2	RD 32/E32 Collet 3-30 mm. L2	RD 40/E40 Collet 4-26 mm. L2	Suitable Spanner
			min.	max.				
QCCCA 2/E16	QCDTC 2	42	30	50	42	-	-	GS25
QCCCA 3/E..	QCDTC 3	50	40	60	42	51	-	E32
QCCCA 4/E..	QCDTC 4	60	40	60	-	63	63	E40

Ordering Example : KTA Adaptor QCCCA 3 / RD32

Adaptor Type QCDCA../B..



Adaptor Type QCCD../60°
Dead Centre



Adaptor Size	Suitable Chuck	D Dia.	Stub Taper Din 238 'L2'	
			B12	B16
QCDCA 2	QCDTC 2	42	21.5	26
QCDCA 3	QCDTC 3	50	26	26
QCDCA 4	QCDTC 4	60	39	39

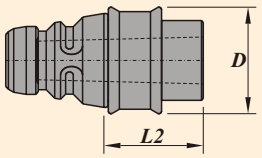
Ordering Example : KTA Adaptor QCDCA 3/B16

Adaptor Size	Suitable Chuck	D Dia.	L2
QCCD 2	ACDTC 2	42	46
QCCD 3	QCDTC 3	50	65
QCCD 4	QCDTC 4	60	78

Ordering Example : KTA Adaptor QCCD 3/60°

QUICK CHANGE DRILLING AND TAPPING CHUCK

Adaptor Type QCDA../MT..
with Internal Morse Taper DIN228

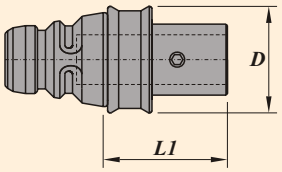


Adaptor Size	Suitable Chuck	D Dia.	Tool Location (Morse Taper)			
			MT1 L2	MT2 L2	MT3 L2	MT4 L2
QCDA 2	QCDTC 2	42	18	30.5	-	-
QCDA 3	QCDTC 3	50	20.5	20.5	38.5	-
QCDA 4	QCDTC 4	60	33.5	33.5	33.5	56

Ordering Example : KTA Adaptor QCDA 3/MT3

Ordering Example : KTA Chuck QCTDC 3/ ISO 50

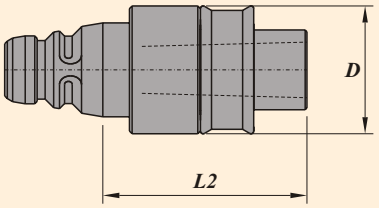
Adaptor Type QCADA../PB..
for Adjustable Adaptor



Adaptor Size	Suitable Chuck	D Dia.	Adjustable Adaptor	Tool Location Morse Taper	L2
QCADA 2/16	QCDTC 2	42	16	MT1	32
QCADA 3/28	QCDTC 3	50	28	MT2	74
QCADA 4/36X28	QCDTC 4	60	36 X 28	MT3	70

Ordering Example : KTA Adaptor QCADA 3/PB28

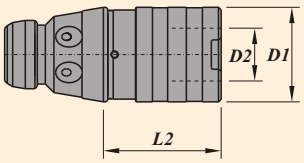
Adaptor ype QCFRF../MT..
with Radial Parallel Float
with Internal Morse Taper DIN228



Adaptor Size	Suitable Chuck	D Dia.	Tool Location Morse Taper	Float in mm	L2
QCFRH 3	QCDTC 3	60	MT3	1.5	91
QCFRH 4	QCDTC 4	72	MT4	1.5	115

Ordering Example : KTA Adaptor QCFRH 3/MT3

Adaptor Type QCTAH../..

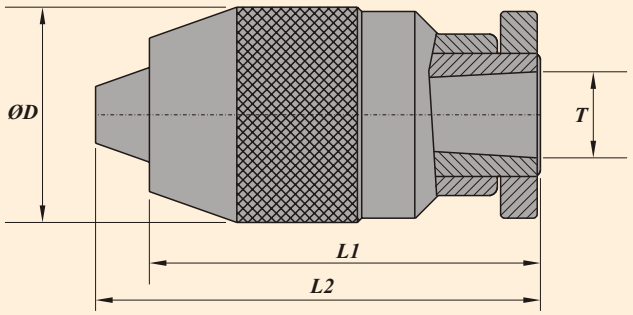


Adaptor Designation Size	Suitable Adaptors		Suitable for Chuck	Length Compens.		D1	L2
	Size	Thread dia.		Comp.	Exp.		
QCTAH 2/1	WES 1B	M 3 - M12	QCDTC 2	7.5	7.5	36	42
QCTAH 2/2	WES 2B	M 8 - M 20	QCDTC 2	12.5	12.5	53	72
QCTAH 3/1	WES 1B	M 3 - M 12	QCTDC 3	7.5	7.5	36	42
QCTAH 3/2	WES 2B	M 8 - M20	QCDTC 3	12.5	12.5	53	66

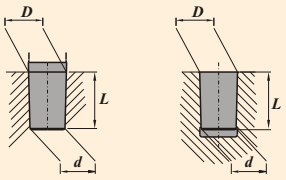
Adaptor Designation Size	Suitable Adaptors		Suitable for Chuck	Length Compens.		D1	L2
	Size	Thread dia.		Comp.	Exp.		
QCTAH 3/3	WES 3B	M14 - M33	QCDTC 3	20.0	20.0	78	126
QCTAH 4/1	WES 1B	M 3 - M12	QCDTC 4	7.5	7.5	36	42
QCTAH 4/2	WES 2B	M 8 - M20	QCDTC 4	12.5	12.5	53	66
QCTAH 4/3	WES 3B	M14 - M33	QCDTC 4	20.0	20.0	78	121

Ordering Example : KTA Adaptor QCTAH 4/3

KEYLESS PRECISION DRILL CHUCK



Description	MOUNTING TAPERS 'T'	THREADS	L1	L2	DØ	WT. IN KG.
0 - 6.5 : 0 - 1/4"	B12 | J1 | J2a	3/8" X 24 UNF	61.5	68	34	0.290
1 13 : 1/32" - 1/2"	B16 | J6 | J2 | J33	1/2" x 20 unf	90.5	103	50	0.945



EXT.TAPER INT.TAPER

TAPER DIN 238

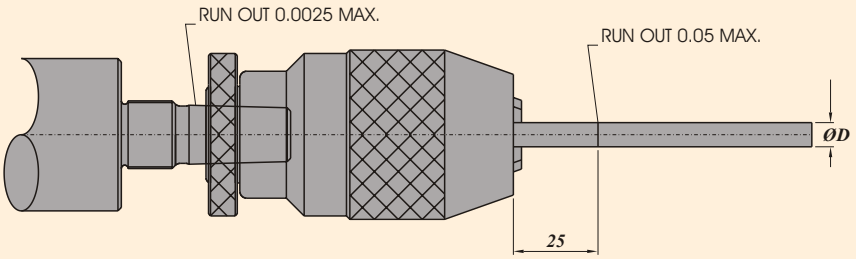
T	DØ	dØ	L
B10	10.094	9.40	14.50
B12	12.065	11.10	18.50
B16	15.733	14.50	24.00

JACOBS TAPER

T	DØ	dØ	L
J1	9.754	8.469	16.669
J2	14.199	12.386	22.225
J33	15.850	14.237	25.400
J6	17.170	15.852	25.400
J2a	13.94	12.386	19.05

Note : Run out inspection method as per DIN 6349 Part 5.

MORSE TAPER ADAPTORS FOR DRILLS (EXTRA LONG)



RUN OUT TESTING AS PER DIN6349 PART 5

Size	DØ
0 - 6.50	6
1 - 13.00	12

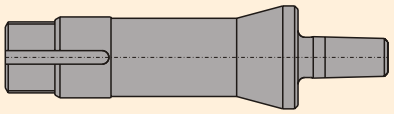
Ordering Example : KTA Keyless Drill Chuck 0 - 6.5 / B12 / Qty. 5 Nos.

PRECISION ARBORS FOR DRILL CHUCK

MORSE TAPER TANG TYPE ARBOR

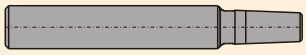
Arbors Tang & Draw type in
MT1, MT2, MT3, MT4 & MT5

A3/A4 FOR TRAUB ARBOR



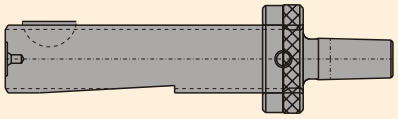
Collet Type Arbors in
A3 & A4 for Traub

CYLINDRICAL ARBOR



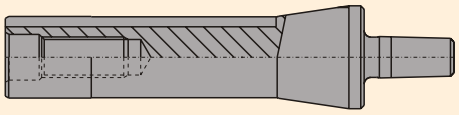
Cylindrical Arbors for Turrets
e.g. 1" x 2.5: Lg.

AUTOMOTIVE SHANK TR/ACME ARBOR



Adjustable Adaptors for
easy "Length Adjustment"

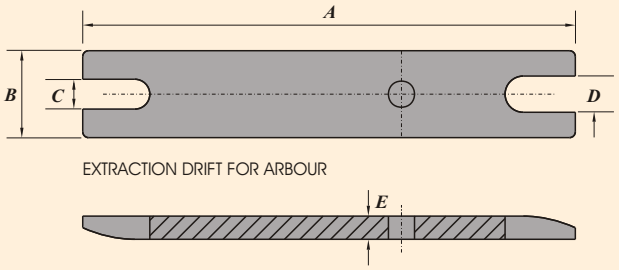
R8/M1TR ARBOR



Arbor for Mounting on M1TR,
Bridgport Tool Mills

Note : Run Out of Tapers is guaranteed within 0.005 mm.
All above Arbors are available in B12 & B16 Tapers for 065 & 113 Keyless Drill Chucks respectively.

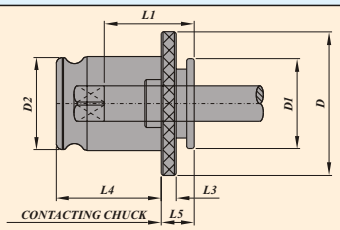
Special Drift for extracting Drill Chuck from Arbor



EXTRACTION DRIFT FOR ARBOUR

Drift for Drill Chuck	A	B	C	D	E	KG.
065	170	30	10.30	12.50	8	0.25
113	210	40	16.00	18.00	10	0.50

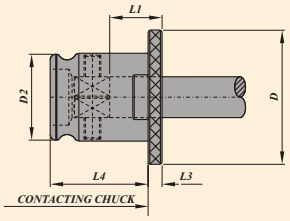
ADAPTOR TYPE KWE



Ordering Example :-
KTA TAP ADAPTOR : KWE1 Ø 6.3X5sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D1 dia.	D2 dia	L1	L3	L4	L5
KWE1	M 3 - M 12	3.5 - 11.3	1	30	19	19	17	4	21.5	7
KWE2	M 8 - M 20	7.0 - 18.0	2	48	30	31	30	5	35.0	11
KWE3	M 14 - M 33	11.0 - 28.0	3	70	48	48	44	6	55.5	14

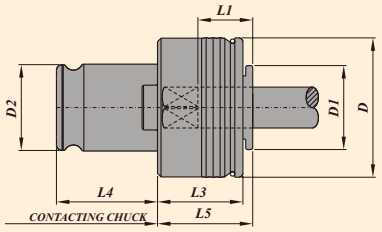
ADAPTOR TYPE KWEK (For Light Duty Application)



Ordering Example :-
KTA TAP ADAPTOR : KWEK2 Ø 20X16sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D2 dia	L1	L3	L4
KWEK1	M16	>11.3 - 12	1	30	19	13	4	21.5
KWEK2	M 27 - M 30	>18.0 - 22	2	48	31	20	5	35.0
KWEK3	M 39 - M 48	>28.0 - 36	3	70	48	36	6	55.5

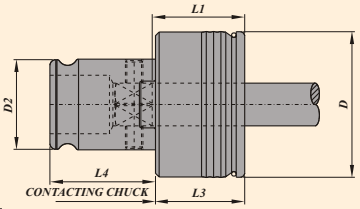
ADAPTOR TYPE KWES / B



Ordering Example :-
KTA TAP ADAPTOR : KWES/1B M8 Ø 10X8sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D1 dia.	D2 dia	L1	L3	L4	L5
KWES / 1B	M 3 - M 12	3.5 - 11.3	1	32	19	19	17	25	21.5	25
KWES / 2B	M 8 - M 20	7.0 - 18.0	2	50	30	31	30	31	35.0	34
KWES / 3B	M 14 - M 33	11.0 - 28.0	3	72	48	48	44	41	55.5	45

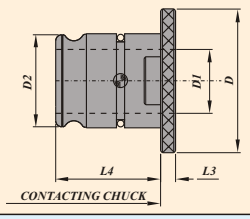
ADAPTOR TYPE KWESK/B (For Light Duty Application)



Ordering Example :-
KTA TAP ADAPTOR : KWESK/1B M16X1 / Ø 12.5X10sq. / Qty. - 2 Nos.

Chuck Designation Size	For Taps	Shank Ø	Suitable for Chuck Size	D dia.	D2 dia	L1	L3	L4
KWESK /1B	M16	>11.3 - 12	1	32	19	27.5	25	21.5
KWESK /2B	M 27 - M 30	>18.0 - 22	2	50	31	32.5	31	35.0
KWESK /3B	M 39 - M 48	>28.0 - 36	3	72	48	40.0	41	55.5

ADAPTOR TYPE KWRE (Reduction Socket)



Ordering Example :-
KTA REDUCER : KWRE 2/1 / Qty. - 2 Nos.

Chuck Designation Size	Suitable for Chuck Size	Adaptor Size	D dia.	D1 dia	D2 dia	L3	L4
KWRE 2/1	2	1	48	19	31	5	35
KWRE 3/2	3	2	70	31	48	6	55.5

TECHNICAL INFORMATION

Tap Shank Dimensions ISO 529 - 1975

Dimension Dia. x Square	Metric		UNC		UNF		BSW		BSF		BA	
		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged		Shank dia. enlarged
3.15 x 2.5	M4	M3	-	No. 4-40	-	No. 4-48	-	-	-	-	-	No. 5
	-	-	No. 8.32	No. 5-40	No. 8-36	No. 5-44	-	-	-	-	No. 3	-
3.55 x 2.8	M 4.5	M 3.5	No. 10-24	No. 6-32	No. 10-32	No. 6-40	3/16"-24	-	3/16"-32	-	No. 2	No. 4
4 x 3.15	M 5	M 4	No. 12-24	-	No. 12-28	-	-	-	7/32"-28	-	No. 1	-
4.5 x 3.55	M 6	-	1/4"-20	No. 8-32	1/4"-28	No. 3-36	1/4"-20	-	1/4"-26	-	No. 0	No. 3
5 x 4	-	M 5	-	No. 10-24	-	No. 10-32	-	3/16"-24	-	3/16"-32	-	No. 2
5.6 x 4.5	-	-	-	No. 12-24	-	No. 12-28	-	-	9/32"-26	7/32"-28	-	No. 1
6.3 x 5	M 8	M 6	5/16"-18	1/4"-20	5/16"-24	1/4"-28	5/16"-18	1/4"-20	5/16"-22	1/4"-26	-	No. 0
7.1 x 5.6	-	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	9/32"-36	-	-
8 x 6.3	M 10	M 8	7/16"-14	5/16"-18	7/16"-20	-	7/16"-14	5/16"-18	7/16"-18	5/16"-22	-	-
9 x 7.1	M 12	-	1/2"-13	-	1/2"-20	-	1/2"-12	-	1/2"-12	-	-	-
10 x 8	-	M 10	-	3/8"-16	-	3/8"-24	-	3/8"-16	-	3/8"-20	-	-
11.2 x 9	M 14	-	9/16"-12	-	9/16"-18	-	9/16"-12	-	9/16"-16	-	-	-
12.5 x 10	M 16	-	5/8"-11	-	5/8"-18	-	5/8"-11	-	3/8"-14	-	-	-
14 x 11.2	M 18	-	3/4"-10	-	3/4"-16	-	11/16"-11	-	11/16"-14	-	-	-
	M 20	-	-	-	-	-	3/4"-10	-	3/4"-12	-	-	-
16 x 12.5	M 22	-	7/8"-9	-	7/8"-14	-	7/8"-9	-	7/8"-11	-	-	-
18 x 14	M 24	-	1"-8	-	1"-12	-	1"-8	-	1"-10	-	-	-
20 x 16	M 27	-	1 1/8"-7	-	1 1/8"-12	-	1 1/8"-7	-	1 1/8"-9	-	-	-
	M 30	-	-	-	-	-	-	-	-	-	-	-
22.4 x 18	M 33	-	1¼"-4	-	1¼"-12	-	1¼"-7	-	1¼"-9	-	-	-
25 X 20	M 36	-	1 3/8"-6	-	1 3/8"-12	-	-	-	1 3/8"-8	-	-	-
28 x 22.4	M 39	-	1½"-6	-	1½"-12	-	1½"-6	-	1½"-8	-	-	-
	M 42	-	-	-	-	-	-	-	1 5/8"-8	-	-	-
31.5 x 25	M 45	-	1 3/4"-5	-	-	-	1 3/4"-5	-	1 3/4"-7	-	-	-
	M 48	-	-	-	-	-	-	-	-	-	-	-

Tap Shank Dimensions DIN

Dimension Dia. x Square	DIN 352	DIN 353	DIN 371	DIN 374	DIN 376	DIN 2182	DIN 2183
3.5 x 2.7	M 3	-	M 3	M 5	M 5	1/8"	-
4 x 3	M 4	-	M 3.5	-	-	-	-
4.5 x 3.4	M 4	-	M 4	M 6	M 6	5/32"	1/4"
6 x 4.9	M 5	-	M 5	-	-	7/32"	-
	M 6	-	M 6	-	-	-	-
	M 8	-	-	M 8	M 8	-	-
7 x 5.5	M 10	G 1/8"	-	M 10	M 10	1/4"	3/8"
8 x 6.2	-	-	M 8	-	-	5/16"	7/16"
9 x 7	M 12	-	-	M 12	M 12	3/8"	1/2"
10 x 8	-	-	M 10	-	-	-	-
11 x 9	M 14	G 1/4"	-	M14	M 14	-	9/16"
12 X 9	M 16	G 3/8"	-	M 16	M 16	-	5/8"
14 X 11	M 18	-	-	M 18	M 18	-	11/16"
16 X 12	M 20	G 1/2"	-	M 20	M 20	-	13/16"
18 x 14.5	M 22	G 5/8:	-	M 22	M 22	-	7/8"
	M 24	-	-	M 24	M 24	-	15/16"
20 x 16	M 27	G 3/4"	-	M 27	M 27	-	1"
22 x 18	M 30	G 7/8"	-	M 30	M 30	-	1 1/8"
25 x 20	M 33	G 1"	-	M 33	M 33	-	1¼"
28 x 22	M 36	G 1 1/8"	-	M 36	M 36	-	1 3/8"
32 x 24	M 39	G 1 1/8"	-	M 39	M 39	-	1½"
	M 42	-	-	M 42	M 42	-	1 5/8"
36 x 29	M 45	G 3/8"	-	M 45	M 45	-	1 3/4"
	M 48	G1½"	-	M 48	M 48	-	1 7/8"
	-	G1 3/4"	-	-	-	-	-
	-	G 2"	-	-	-	-	-

Tap Shank Dimensions ANSI (US Standards)

Dimension in Inch. Dia. x Square		Metric Conversions		Tap Size
0.141	0.110	3.59	2.80	1/8" No.6
0.168	0.131	4.27	3.33	5/32" No.8
0.194	0.152	4.93	3.87	3/16" No. 10
0.220	0.165	5.59	4.20	No. 12
0.255	0.191	6.48	4.86	1/4" No. 14
0.312	0.234	7.94	5.95	1/16"Ps 1/8"Ps
0.318	0.238	8.08	6.05	5/16" 3/8"
0.323	0.242	8.21	6.15	5/16" 7/16"
0.367	0.275	9.33	6.99	1/2"
0.381	0.286	9.68	7.27	3/8"
0.429	0.322	10.90	8.18	9/16"
0.438	0.328	11.12	8.34	1/8"Ps
0.480	0.360	12.20	9.15	5/8"
0.542	0.406	13.77	10.31	11/16"
0.563	0.421	14.29	10.70	1/4"Ps
0.590	0.442	14.99	11.23	3/4"
0.652	0.489	16.57	12.43	M 20
0.688	0.515	17.47	13.09	1/2" Ps
0.697	0.523	17.71	13.29	7/8"
0.700	0.531	17.78	13.49	3/8"Ps
0.760	0.570	19.31	14.48	M 24
0.800	0.600	20.32	15.24	1"
0.896	0.672	22.76	17.07	1 1/8"
0.906	0.679	23.02	17.25	3/4"P
1.021	0.766	25.94	19.46	1¼"
1.108	0.833	28.15	21.11	1 3/8"
1.125	0.843	28.58	21.42	1"P
1.233	0.925	31.32	23.50	1½"
1.132	0.984	33.34	25.00	1¼"P
1.430	1.072	36.33	27.23	1 3/4"

Tap Shank Dimensions (JIS Standards)

Dimension in mm. Dia. x Square		Tap Size
4.0	3.0	M 3 & M 3.5
5.0	4.0	M 4 & M 4.5
5.5	4.5	M 5
6.0	4.5	M 6
6.2	5.0	M 7 & M 8
7.0	5.5	M 9 & M 10
8.0	6.2	M 11
8.5	6.5	M 12
10.5	8.0	M 14
12.5	10.0	M 16
14.0	11.0	M 18
15.0	12.0	M 20
17.0	13.0	M 22
19.0	15.0	M 24
20.0	15.0	M 27
23.0	23.17	M 30

Recommended Torque Valves

For Safety Clutch adjustment For Tapping & Cold Forming (Rolling)

For material upto 1000 N/mm²

Torque Setting Nm	Threads										Torque Setting Nm
	Metric	Whitworth BSW	BSP Whitworth Pipe	BSF	BSP Taper	BA	PG	NPT Taper	UNC	UNF	
0.5	M3	-	-	-	-	No. 7	-	-	-	-	0.5
0.6	-	-	-	-	-	No. 6	-	-	No. 3	No. 4	0.6
0.8	M 3.5	-	-	-	-	No. 5	-	-	No. 4	No. 5	0.8
1.0	-	1/8"	-	-	-	-	-	-	No. 5	-	1.0
1.2	-	-	-	-	-	No. 4	-	-	-	No. 6	1.2
1.6	M4	-	-	-	-	-	-	-	No. 6	No. 8	1.6
2.0	-	5/32"	-	-	-	No. 3	-	-	No. 8	-	2.0
2.5	M5	-	-	3/16"	-	No. 2	-	-	-	No. 10	2.5
3.0	-	-	-	-	-	-	-	-	-	No. 12	3.0
4.0	-	3/16"	-	7/32"	-	No. 1	-	-	No. 10	1/4"	4.0
5.0	M6	7/32"	-	1/4"	-	No. 0	-	-	No. 12	-	5.0
6.0	-	-	G 1/8"	9/32"	-	-	-	-	-	5/16"	6.0
8.0	-	1/4"	-	5/16"	-	-	-	-	1/4"	3/8"	8.0
10	M8	-	-	-	-	-	-	-	-	-	10
12	-	5/16"	-	3/8"	-	-	PG 7	-	5/16"	7/16"	12
16	-	-	-	-	-	-	-	-	-	1/2"	16
18	M10	3/8"	G 1/4"	7/16"	1/8"	-	-	-	3/8"	-	18
20	-	-	-	-	-	-	PG9	1/8"	-	-	20
22	-	-	-	-	-	-	PG11	-	-	9/16"	22
25	-	-	-	1/2"	-	-	PG 13.5	-	-	5/8"	25
28	M 12	7/16"	G 3/8"	-	-	-	PG 16	-	7/16"	-	28
32	-	-	-	9/16"	-	-	-	-	-	-	32
36	-	-	-	-	-	-	-	-	-	3/4"	36
40	-	-	-	5/8"	-	-	-	-	1/2"	-	40
45	M 14	1/2"	-	11/16"	-	-	PG 21	-	-	-	45
50	M 16	-	G 1/2"	-	1/4"	-	-	-	9/16"	-	50
56	-	-	G 5/8"	-	-	-	-	1/4"	-	7/8"	56
63	-	5/8"	-	-	3/8"	-	PG 29	-	5/8"	-	63
70	-	-	G 3/4"	3/4"	-0	-	-	3/8"	-	-	70
80	M 18	-	G 7/8"	13/16"	-	-	PG 36	-	-	-	80
90	M 20	3/4"	-	7/8"	-	-	PG 42	-	3/4"	1"	90
100	M22	-	-	-	-	-	PG 48	-	-	1 1/8"	100
110	-	-	-	-	-	-	-	-	-	1¼"	110
125	-	7/8"	-	1"	-	-	-	-	7/8"	1 3/8"	125
140	-	-	G 1"	-	-	-	-	-	-	1½"	140
160	M24	-	G 1 1/8"	-	1/2"	-	-	1/2"	-	-	160
180	M 27	-	G 1¼"	1 1.8"	-	-	-	-	-	-	180
200	-	1"	G 1 3/8"	1¼"	3/4"	-	-	3/4"	1"	-	200
220	-	-	G 1½"	-	-	-	-	-	-	-	220
240	-	-	G 1 3/4"	-	-	-	-	-	-	-	240
260	-	-	G 2"	1 3/8"	-	-	-	-	-	-	260
280	M 30	1 1/8"	-	-	-	-	-	-	1 1/8"	-	280
300	-	-	G 2¼	1½	-	-	-	-	-	-	300
320	M 33	1¼"	-	1 5/8"	-	-	-	-	1¼"	-	320
340	-	-	G 2¼"	-	1"	-	-	1"	-	-	340
360	-	-	G 2 3/4"	-	-	-	-	-	-	-	360
400	-	-	G 3"	-	-	-	-	-	-	-	400
420	M 36	-	G 3¼"	-	-	-	-	-	-	-	420
450	-	-	G 3½"	1 3/4"	1¼"	-	-	1¼"	-	-	450
480	M 39	1 3/8"	G 3 3/4"	-	-	-	-	-	1 3/8"	-	480
500	-	1½"	G 4"	2"	-	-	-	-	1½"	-	550
560	-	-	-	-	1½	-	-	1½"	-	-	560
630	M 42	-	-	-	-	-	-	-	-	-	630
710	M 45	-	-	2¼"	2"	-	-	2"	-	-	710
800	-	1 5/8"	-	2½"	-	-	-	-	-	-	800
900	M 48	1 3/4"	-	23/4"	-	-	-	-	1 3/4"	-	900

The given torque values are for tapping & cold forming operations. They pertain to material with a tensile strength of 1000 N/mm².
The torque values for tapping include a wear factor of 100%.
If necessary, these values can be increased by up to 20% for tapping & up to 50% for cold forming.

CONTENTS PAGE