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However, if you would like to take advantage of the built in interactive features you will need to download an app.

We have reviewed many apps and have found that "ezPDF Reader" seems to work the best on both the Apple and Droid product lines. It is available in two forms - one for the pads and one for the phones.

Start by going to your apps download center on your device. Search for "ezPDF Reader" and look for the above icon. Purchase the app that matches your device (at the time this catalog was created ezPDF reader was selling for $2.99). Download and activate the app.

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RSVP Tooling, Inc.

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Tangential Thread Rolling

Tangential Thread Rolling System:

Our RT Tangential system is interchangeable with the Fette style tangential thread rolling system. They will fit into your existing machine tool holders and take the same rolls you are currently using:

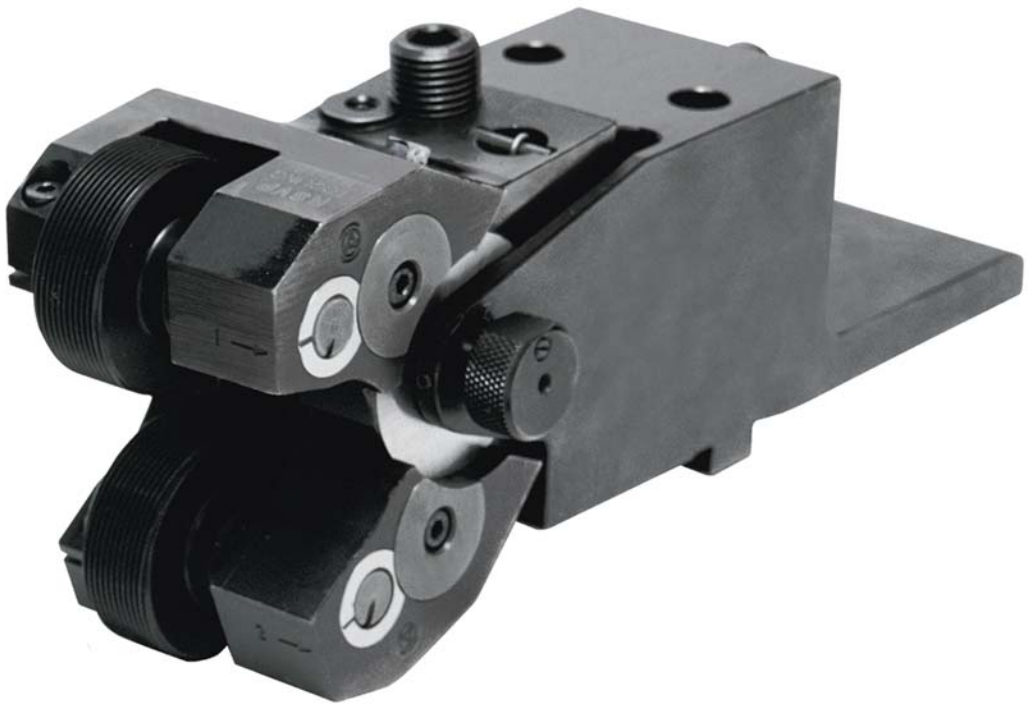
RT10 = T12 RT20 = T18 RT30 = T27

By using lathe type machine tools with automatic, power infeed as with controlled or hydraulic automatics, hydraulically operated copy lathe, NC/CNC lathes, etc., it is now possible to feed from the side of the part and obtain all of the advantages of the rolling method. RSVP tangential type rolling attachments are especially suited to produce the following threads and profiles:

- **Thread rolled behind a shoulder**
- **Extremely short thread lengths**
- **Threads with a very short runout (approx. 1/2 - 1 x pitch)**
- **Tapered threads**
- **Straight knurls DIN 82**
- **Burnishing**
- **Forming**

The component must rotate for this application.

RSVP tangential side rolling attachments are available in 3 sizes covering a wide range of diameters. It is recommended that the largest rolling attachment that can be adapted on the machine always be used, thereby offering the advantage that the entire work range of the machine can be utilized. Longer threads, maximum component shoulder diameters, and a higher efficiency of the rolling attachment will be attained that way.



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Tangential Side Thread Rolling Attachments, Type RT10, RT20 & RT30

RSVP tangential side rolling attachments were originally developed to roll threads behind a shoulder. The process requires the rolls to be plunged, at a controlled rate, into the rotating component. Tangential side rolling attachments may be mounted in any machine tool having a cross slide or turret with a controlled feed stroke. The attachment is mounted in a holder that has been designed for a specific machine tool. There must be clearance between the attachment and machine tool, as well as between the arms of the attachment and any shoulder on the component.

For left-hand threads, the same attachment can be used as for right-hand threads. Left-hand threads require left-hand rolls.

RSVP - Tangential side rolling attachments, Type RT, have a capacity range to 64 mm/2.52".

Capacity ranges are shown in the adjoining table.

The thread length including thread runout can not exceed the width of the roll. For shorter threads, rolls can be supplied with a recess for additional clearance. Roll width must be specified.

Also attachments with smaller construction numbers are suitable in the same work range, there are exceptions.

Fig. 1: Tangential Side Thread Rolling Attachments, Type RT

Capacity Range

Cylindrical Threads

Type		Major Diameter min.	Major Diameter max.	max. Pitch min. TPI	Roll width max.[1)]
RT10	mm	1.6	14	1.5	15.5
up to work No. 66	inch	1/6	9/16	16	0.6102
RT20	mm	2	30	2	21.5
up to work No. 548	inch	5/64	1 3/16	12	0.8465
RT30	mm	2	42	2.5	31
up to work No. 467	inch	5/64	1 5/8	10	1.2205

Tapered Threads

Type	Standard	min.	max.
RT10 Up to work No 66	DIN 158	M 6 x 1 taper	M 14 x 1.5 taper
	DIN 2999	G 1/16 - 28	G 1/4 - 19
	DIN 3858	G 1/8 - 28	G 1/4 - 19
	ANSIB1.20.1	1/16-27NPT(NPTF)	1/4-18NPT(NPTF)
RT20 up to work No 548	DIN 158	M 6 x 1 taper	M 30 x 1.5 taper
	DIN 2999	G 1/16 - 28	G 3/4 - 14
	DIN 3858	G 1/8 - 28	G 3/4 - 14
	ANSIB1.20.1	1/16-27NPT(NPTF)	1/2-14NPT(NPTF)
RT30 up to work No. 467	DIN 158	M 6 x 1 taper	M 42 x 2 taper
	DIN 2999	G 1/16 - 28	G 1 1/4 - 11
	DIN 3858	G 1/8 - 28	G 1 1/4 - 11
	ANSI B 1.20.1	1/6 - 27 NPT (NPTF)	1 -11.5 NPT (NPTF)

Tolerances for Shoulder dia. and cam rise.

With metric (DIN 458) and Whitworth (DIN 2999, DIN 3858) profiles the shoulder dia. and cam rise with cylindrical threads are dimensionally identical, NPT - and NPTF (ANSI B 1.20.1) threads.

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Thread Rolls & Setting Gauges

Thread rolls
One set of rolls is needed for each thread size. One set has two different rolls. They are marked with the number 1 and 2. The rolls have a defined position on the rolling attachment. The roiling attachments are marked on the front end, with the number 1 on the upper side and number 2 on the lower side. The roll number 1 has to be mounted where the number 1 is marked on the attachment. It is imperative that the roll is mounted with the marked number looking towards the outside of the attachment. The same has to be done with roll number 2. Both marked numbers have to look to the outer side of the attachment.

Spindle direction may be right or left handed the component must rotate in the same direction of the arrow on the roll that contacts the component first.

The marking in the roll consists of the thread size, attachment size, code number, roll width, roll style and EDP number.

Setting Gauges
There is a setting gauge for each thread size. The setting gauge has to tasks:

1. The distance of the axles are set-up after mounting the rolls on the attachment. In general the width of the recessed part of the gauge is equivalent to the core diameter of the thread. This dimension has to be setup tight between the rolls.

Please check when using the setting gauge that the marking of attachment size and serial code number are identical to the marking of attachment size and serial code number on the rolls.

2. The size of the stroke is set. The attachment holder is mounted on the slide (turret). The gauge is mounted on the pin of the attachment holder. The slide has to be advanced towards the component direction, until the tip of the gauge touches the blank diameter. This position is the end of the work stroke.

Roll-Key-Code:
(Example for M 22 x 2.5 on attachment Type RT30)

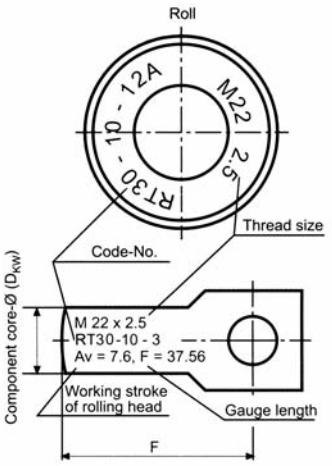
RT30 - 10 - 12 A
- Attachment size
- Serial No.
- Roll width
- Roll style
- A not for max. roll width

Max. width rolls
T 12 = 15.5 mm/0.61"
T 18 = 21.5 mm/0.846"
T 27 = 31 mm/1.22"
T 42 = 40.5 mm/1.594"

Setting Gauges-Key-Code:
(Example for M 22 x 2.5 on attachment Type RT30)

RT30 - 10 - 3
- Attachment size
- Serial No.
- Number of starts on the roll

Please check when using the setting gauge, that the marking of attachment size and serial code number are identical to the marking of attachment size and serial code no. on the rolls.



Standard roll width design

Head	Roll Widths (mm)/inch													
RT10	4	6	8	10	12	14	15.5							
	0.157	0.236	0.315	0.394	0.472	0.551	0.61							
RT20	-	6	8	10	12	14	16	18	21.5					
	-	0.236	0.315	0.394	0.472	0.551	0.63	0.709	21.5					
RT30	-	-	8	10	12	14	16	18	20	22	24	26	28	31
	-	-	0.315	0.394	0.472	0.551	0.63	0.709	0.787	0.866	0.945	1.024	1.102	1.22

It is recommended to order the roll widths in the dimensions shown. Special requirements upon request.

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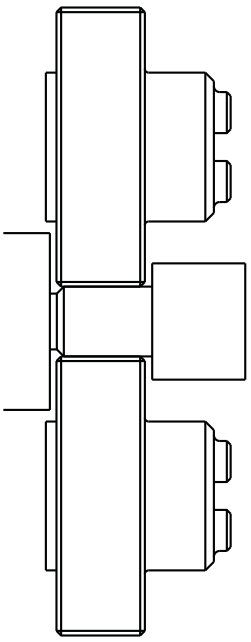
Design of Rolls

Depending on the type of component, rolls of various design configurations can be used (normally design "A" is used). The maximum roll runout on each side can be about 1 x pitch, or in the case of multiple start threads about 1 x lead. The width of rolls must therefore be at least 2 x pitch longer than the effective thread length on the component.

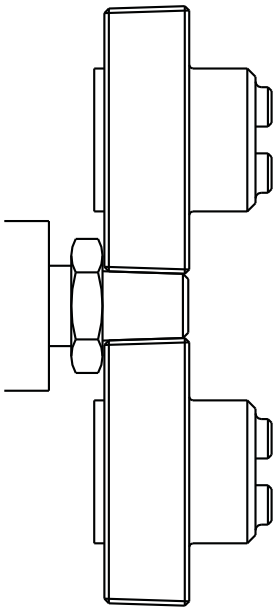
If the roll width is unimportant (Example: journal portion in front, or in front of a shoulder diameter) it would be advisable to indicate the minimum and the maximum width of the roll, as it would facilitate delivery from stock. The tangential side rolling attachment can also be used with its wide arm side pointing towards the spindle.

One set of rolls and one setting gauge are required for every size of thread to be rolled. The first two number groups need to be the same.

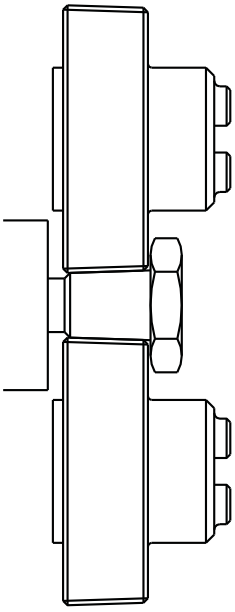
Example of roll width and styles for tapered & parallel type threads



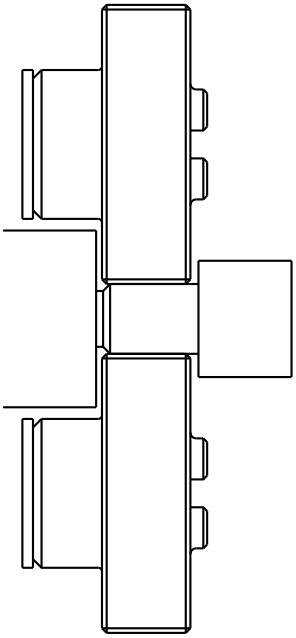
Parallel Rolls - Type A



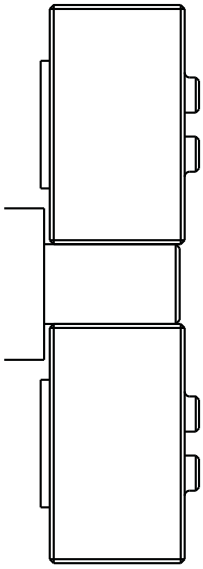
Taper Rolls - Type AV



Taper Rolls - Type A



Parallel Rolls - Type B



Parallel Rolls - Type F

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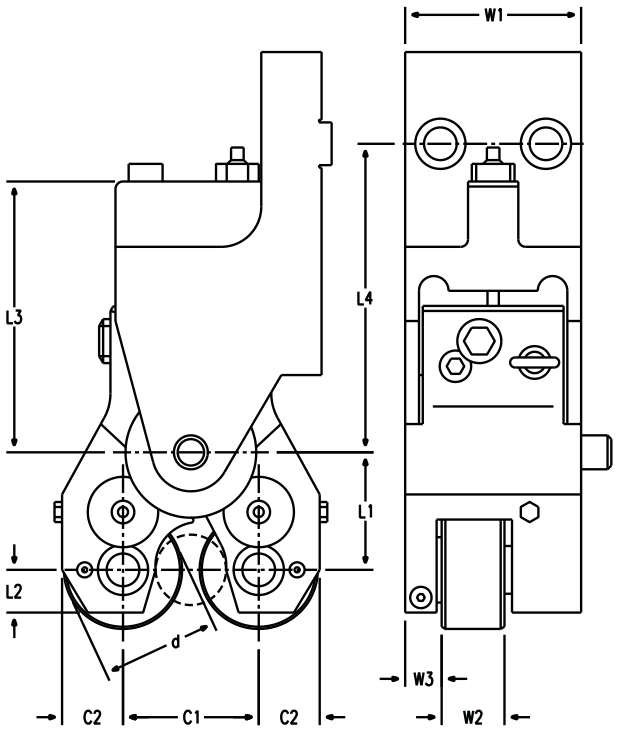
RT10, RT20, RT30
Side Thread Rolling Attachment

Cat. No. **7212 = RT10**
7218 = RT20
7227 = RT30

Dmax = max. shoulder diameter
Av = Operating feed
Dimensions above refer to cross slide mounted holder. Dimensions for other tool holder are adapted to the respective machine.



Roiling Attachment		RT10	RT20	RT30
b_1 mm/inch		43 / 1 .693	58 / 2.283	83 / 3.268
b_2 mm/inch		15.5 / 0.61	21.5 / 0.846	31 / 1.22
b_3 mm/inch		7.2 / 0.283	11.1 / 0.437	15.8 / 0.622
Lr h . 1		23.2 / 0.913	30.1 / 1.185	43.1 / 1.697
mm InC min. max.		27.6 / 1.087	37.8 / 1.488	53.5 / 2.106
L_2 mm/inch		10 / 0.394	14 / 0.551	20 / 0.787
L_3 mm/inch		80 / 3.15	100 / 3.937	124 / 4.882
h_1 mm/inch min./max.		26.5 / 1.043	40.5 / 1.594	59.5 / 2.343
		40 / 1.575	61 / 2.402	87 / 3.425
h_2 mm/inch		14/0.551	19.8/0.78	28/1.102
d mm/inch max.		31.5 / 1.24	44 / 1.732	63 / 2.48
L_4		70 / 2.756	97.5 / 3.839	140 / 5.512
Weight Approx. (kg)	Rolling Attachment	0.65	1.7	4.9
	Roiling Attachment Holder	0.75	2.4	4.2
	Thread rolls (1 set = 2 pieces)	0.17	0.45	1.4
	Setting gauge	0.05	0.1	0.2
	Total	1.62	4.65	10.7

For left hand threads, the same rolling attachment can be used as for right hand threads. Left hand threads require left hand rolls.

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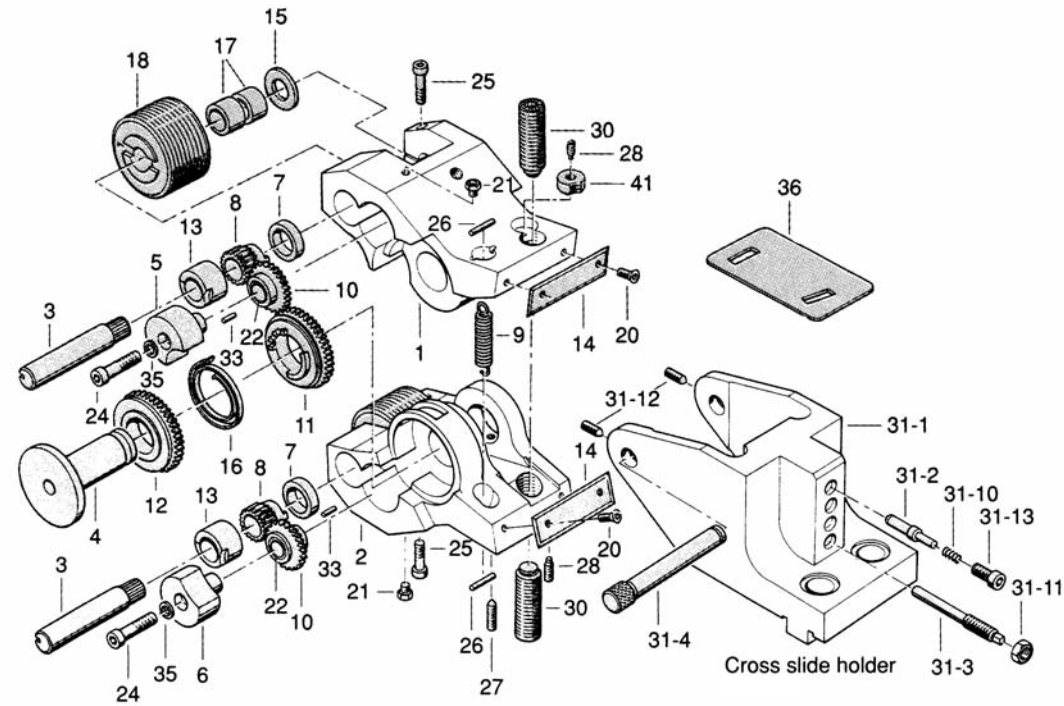
RT10, RT20, RT30
Side Thread Rolling Attachment

Spare Parts



Rolling Attachments

Part No.	Qty.	Part Description
1[1)]	1	Upper arm
2[1)]	1	Lower arm
3	2	Shaft
4	1	Centre shaft
5	1	Bushing
6	1	Bushing
7	2	Bearing Bushing
8	2	Pinion
9	1	Tension spring
10	2	Gear with bushing
11[1)]	-	-
12[1)]	1	Gear with coil spring
13	2	Carbide Bushing
14	2	Plate
15	2	Thrust washer
16	1	Coil spring - see part no. 11, 12
17	4	Bushing
18	2	Thread rolls
20	4	Flat head screws
21	2	Grease nipple
22	2	Bearing bushing - see part no. 10

Rolling Attachments

Part No.	Qty.	Part Description
24	2	Cap screw
25	2	Cap screw
26	2	Straight pin
27	1	Set screw
28	2	Set screw
30	2	Adjustment set screw
31	1	Attachment Holder complete
31-1	1	Basic housing
31-2	1	Spring-loaded bolt
31-3	1	Stop bolt
31-4	1	Bolt
31-10	1	Thrust spring
31-11	1	Hexagon nut
31-12	2	Set screw
31-13	1	Cap screw
32	1	Setting gauge
33	2	Slotted pin - see part no. 2, 5
35	2	Schnorr circlip
36	1	Sheet metal gauge
41	2	Lock washer

[1)] To be used and available only in piece.

Important Note: When ordering rolling attachments, spare parts, rolling attachment holders, setting gauges and thread rolls of the same type as previously supplied, it is absolutely necessary to state the marking on this attachment, size and serial number.

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Tangential Thread Rolls

Unified Threads

Thread Size	RT10	RT20	RT30
2-56 UNC	X	X	
2-64 UNF	X	X	
3-48 UNC	X	X	
3-56 UNF	X	X	
4-40 UNC	X	X	
4-48 UNF	X	X	
5-40 UNC	X	X	
5-44 UNF	X	X	
6-32 UNC	X	X	
6-40 UNF	X	X	
8-32 UNC	X	X	
10-24 UNC	X	X	
10-32 UNF	X	X	
12-24 UNC	X	X	
12-28 UNF	X	X	
12-32 UNEF	S	S	
1/4-20 UNC	X	X	X
1/4-28 UNF	X	X	X
1/4-32 UNEF	S	S	S
5/16-18 UNC	X	X	X
5/16-24 UNF	X	X	X
5/16-32 UNEF	S	S	S
3/8-16 UNC	X	X	X
3/8-24 UNF	X	X	X
3/8-32 UNEF	S	S	S
7/16-14 UNC		X	X
7/16-20 UNF	X	X	X
7/16-28 UNEF	S	S	S
1/2-13 UNC	X	X	
1/2-20 UNF	X	X	X
1/2-28 UNEF	S	S	S
9/16-12 UNC		X	X
9/16-18UNF	X	X	X
9/16-24 UNEF	S	S	S
5/8-11 UNC			X
5/8-18 UNF		X	X
5/8-24 UNEF		S	S
1 1/16-24 UNEF		S	S
3/4-10UNC		X	X
3/4-16 UNF		X	X
3/4-20 UNEF		X	X
13/16-20 UNEF		S	S
7/8-14 UNF		X	X
7/8-20 UNEF		X	X
15/16-20 UNEF		S	S
1-12UNF		X	X
1-20 UNEF		X	X

Unified Threads

Thread Size	RT10	RT20	RT30
1-1/16-18 UNEF		S	S
1-1/8-12 UNF		X	X
1-1/8-18 UNEF		S	S
1-3/16-18 UNEF		S	S

NPT/NPTF Threads

Thread Size	RT10	RT20	RT30
1/16-27	X	X	X
1/8-27	X	X	X
1/4-18		X	X
3/8-18		X	X
1/2-14		X	X
3/4-14		X	X
1-11.5			X
1-1/4-11.5			X

Standard Rolls For
Rolling Heads "X" Indicates Standard

For Designed Head Size "S" Indicates Special

Standard Roll Widths

RT10 Rolls Available In:
4MM, 6MM, 8MM, 10MM, 12MM, 14MM, 15.5MM

RT20 Rolls Available In:
6MM, 8MM, 10MM, 12MM, 14MM, 16MM, 18MM, 21.5MM

RT30 Rolls Available In:
8MM, 10MM, 12MM, 14MM, 16MM, 18MM,
20MM, 22MM, 24MM, 26MM, 28MM, 30MM

Thread Rolls Are Interchangeable With:
RT10 with T12 **RT20** with T18
RT30 with T27

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Tangential Thread Rolls

Metric Threads

Thread Size	RT10	RT20	RT30
M2 X 0.4	X		
M2.2 X 0.45	X		
M2.5 X 0.45	X		
M3 X 0.5	X	X	
M3.5 X 0.5	X	X	
M4 X 0.7	X	X	
M5 X 0.8	X	X	
M5 X 0.5	S	S	
M6 X 1	X	X	X
M6 X 0.75	S	S	S
M6 X 0.5	S	S	S
M8 X 1.25	X	X	X
M8 X 1.25	X	X	X
M8 X 0.75	S	S	S
M8 X 0.5	S	S	S
M10 X 1.5	X	X	X
M10 X 1.25	X	X	X
M10 X 1	X	X	X
M10 X 0.75	S	S	S
M12 X 1.75		X	X
M12 X 1.5	X	X	X
M12 X 1.25	X	X	X
M12 X 1	X	X	X
M14 X 2		X	X
M14 X 1.5	X	X	X
M14 X 1.25	X	X	X
M14 X 1	X	X	X
M16 X 2		X	X
M16 X 1.5		X	X
M16 X 1.5		X	X
M16 X 1		X	X
M18 X 2		X	X
M18 X 1.5		X	X
M18 X 1.5		X	X
M20 X 2		X	X
M20 X 1.5		X	X
M20 X 1		X	X
M22 X 2		X	X
M22 X 1.5		X	X
M22 X 1		X	X
M24 X 2		X	X
M24 X 1.5		X	X
M24 X 1		X	X
M26 X 1.5		X	X
M27 X 2		X	X
M27 X 1.5		X	X
M28 X 1.5		X	X
M30 X 2		X	X
M30 X 1.5		X	X

Metric Threads

Thread Size	RT10	RT20	RT30
M33 X 2			X
M33 X 1.5			X
M35 X 1.5			X
M36 X 2			X
M36 X 1.5			X
M39 X 2			X
M39 X 1.5			X
M40 X 1.5			X
M42 X 2			X
M42 X 1.5			X

Whitworth Pipe Parallel

Thread Size	RT10	RT20	RT30
G1/8-28	X	X	X
G1/4-19	X	X	X
G3/8-19		X	X
G1/2-14		X	X
G5/8-14		X	X
G3/4-14		X	X
G7/8-14			X
G1-11			X
G1-1/8-11			X
G1-1/4-11			X

Standard Rolls For
Rolling Heads "X" Indicates Standard
For Designed Head Size "S" Indicates Special

Standard Roll Widths

RT10 Rolls Available In:
4MM, 6MM, 8MM, 10MM, 12MM, 14MM, 15.5MM

RT20 Rolls Available In:
6MM, 8MM, 10MM, 12MM, 14MM, 16MM, 18MM, 21.5MM

RT30 Rolls Available In:
8MM, 10MM, 12MM, 14MM, 16MM, 18MM, 20MM,
22MM, 24MM, 26MM, 28MM, 30MM

Thread Rolls Are Interchangeable With:
RT10 with T12 **RT20** with T18
RT30 with T27

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