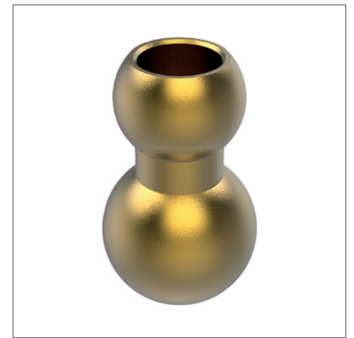
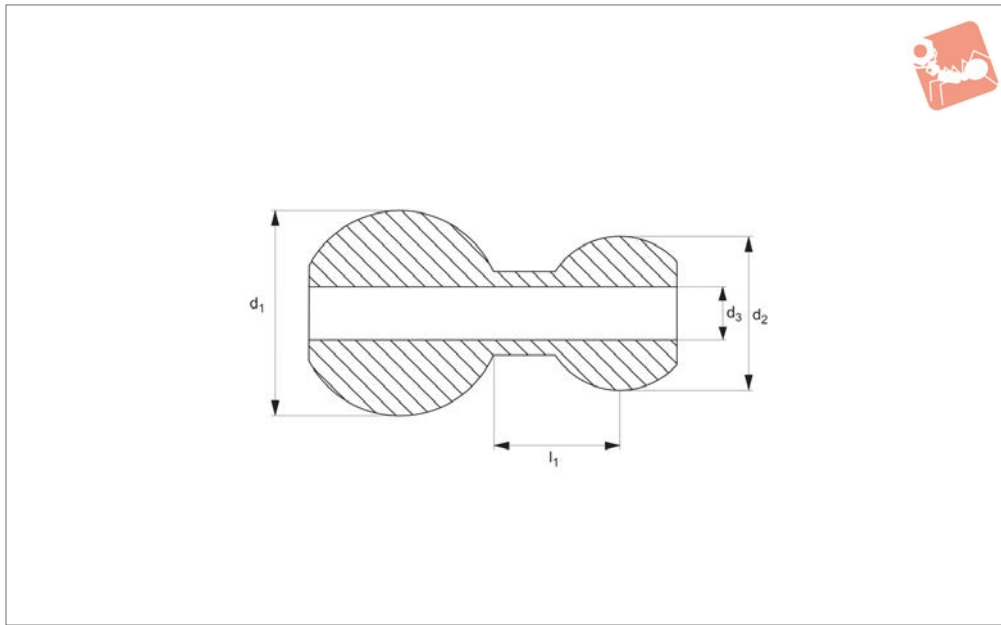




Swivel Max. - Brass Base Element

modular coolant nozzle system - max. 6,7 bar

Coolant Nozzles



20051

COOLANT NOZZLES

Material

Brass.

Max. pressure: 6,7 bar.

Technical Notes

Max. temperature: 43°C.

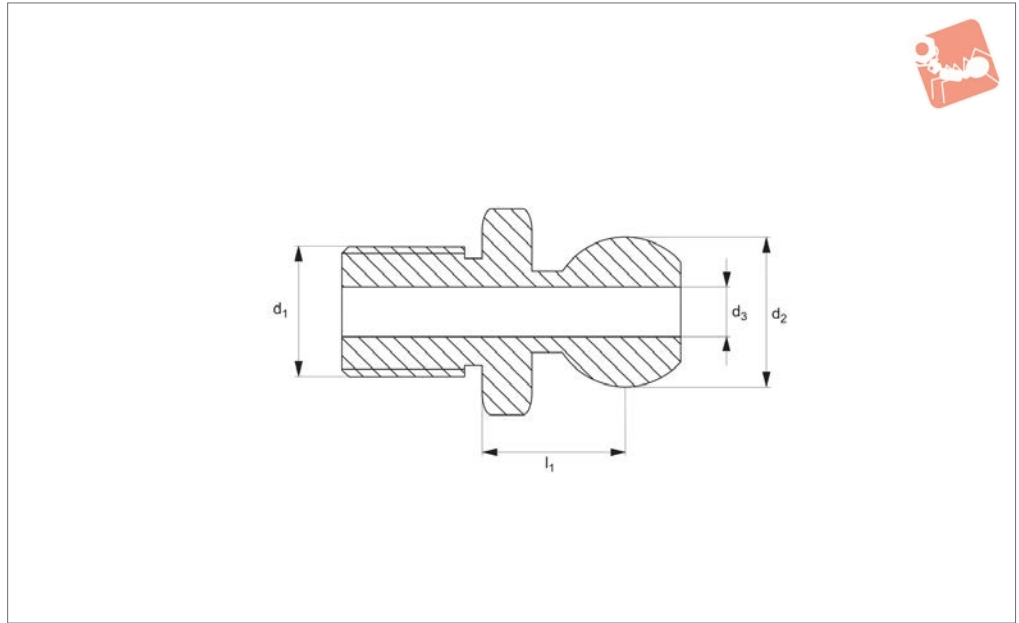
Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20059).

Order No.	d ₁	d ₂	d ₃	l ₁
20051.W0100	10	12	5	10.2
20051.W0120	12	12	5	10.2
20051.W0140	14	12	5	10.2
20051.W0150	15	12	5	10.2
20051.W0220	22	12	5	10.2
20051.W2500	1/2"	12	5	10.2
20051.W2630	5/8"	12	5	10.2



20052



Material

Acetal.

Max. pressure: 6,7 bar.

Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20059).

Technical Notes

Max. temperature: 43°C.

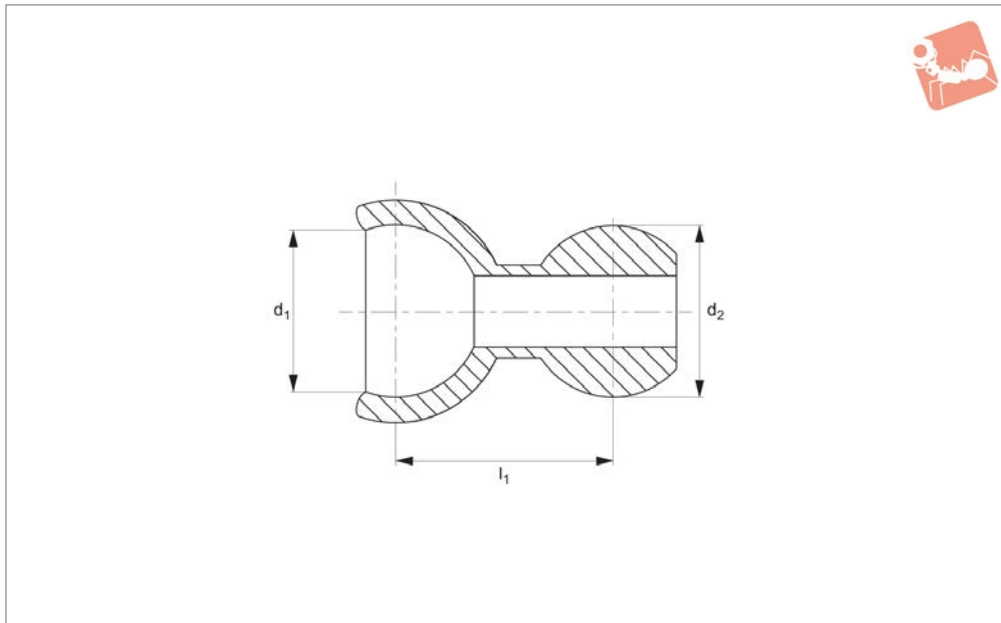
Order No.	Type	d ₁	d ₂	d ₃	l ₁
20052.W0100	Metric Fine	M10x1,25	12	5	10.2
20052.W0120	Metric Fine	M12x1,25	12	5	10.2
20052.W0140	Metric Fine	M14x1,00	12	5	10.2
20052.W1100	Metric Coarse	M10x1,50	12	5	10.2
20052.W1120	Metric Coarse	M12x1,75	12	5	10.2
20052.W1140	Metric Coarse	M14x2,00	12	5	10.2
20052.W2120	NPT/BSPT	1/8"	12	5	10.2
20052.W2250	NPT/BSPT	1/4"	12	5	10.2



Swivel Max. - Intermediate Links

modular coolant nozzle systems - max. 6,7 bar

Coolant Nozzles



20053

COOLANT NOZZLES

Material
Acetal.

Max. pressure: 6,7 bar.

For extension tube see 20090.

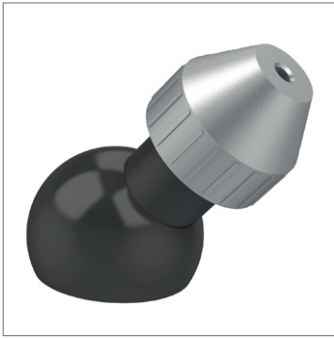
Technical Notes

Max. temperature: 43°C.

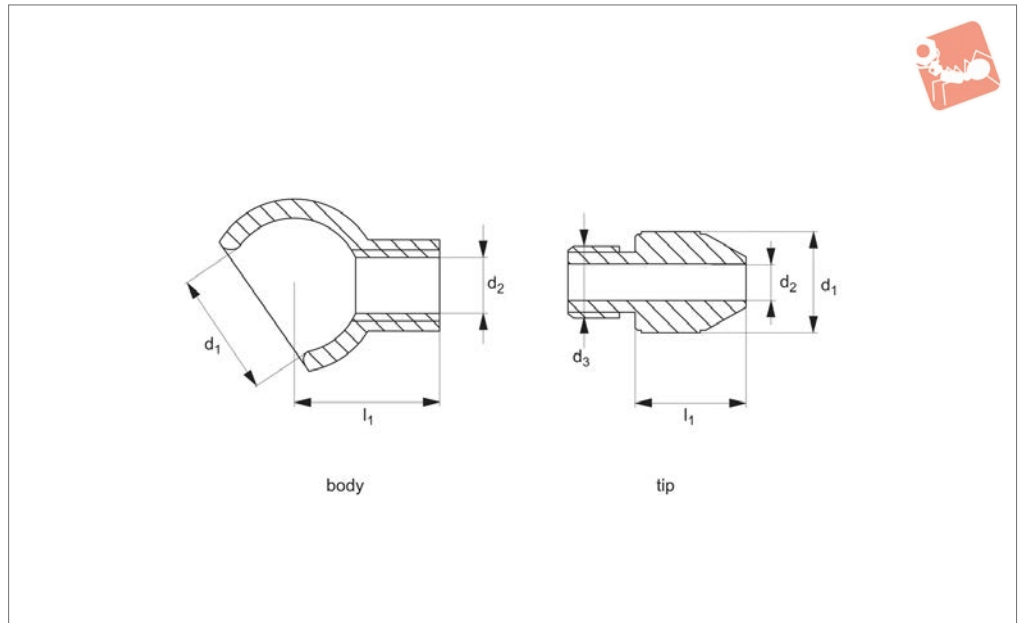
Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20059).

Order No.	Adaptor type	d ₁	d ₂	l ₁	From	To
20053.W0010	Standard Swivel Max Intermediate Link	12,0	12,0	15,2	Swivel Max	Swivel Max
20053.W0020	Reverse link to allow Swivel Max base to be used at both ends of nozzle assembly	12,0	12,0	16,5	Swivel Max	Swivel Max
20053.W0120	From Swivel Max to LocLine - to extend from Swivel Max link to add LocLine spray bar	12,0	6,3	15,7	Swivel Max	LocLine
20053.W0130	From Swivel Max to SnapLoc - to extend from Swivel Max link to add SnapLoc flare nozzle	12,0	6,3	15,7	Swivel Max	SnapLoc
20053.W0140	From SnapLoc to Swivel Max - to attach Swivel Max Fixed Flow Nozzle 20055 to SnapLoc	6,3	12,0	15,7	SnapLock	Swivel Max
20053.W0150	From LocLine to Swivel Max - to attach Swivel Max Vari Flow Nozzle 20056 to LocLine	6,3	12,0	15,7	LockLine	Swivel Max



20055



Material

Body: acetal.

Spray tip: aluminium.

Technical Notes

Max. temperature: 43°C.

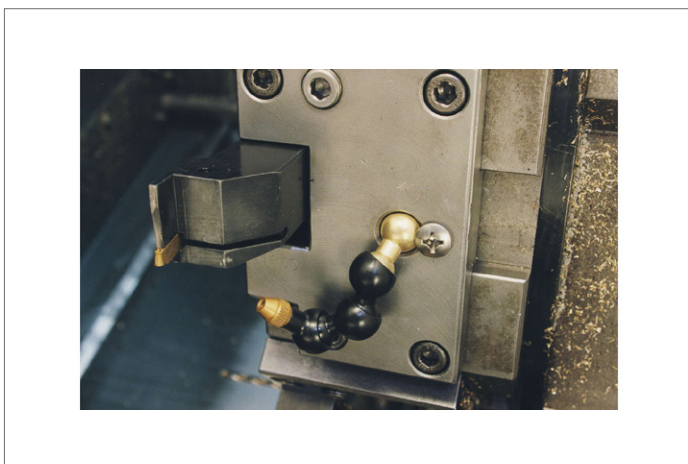
Max. pressure: 6,7 bar.

Please order body and tip separately.

Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20059).

Order No.	Type	d ₁	d ₂	d ₃	l ₁
20055.W1150	Tip	9.1	1.6	1/4"UNF	10.2
20055.W2121	Tip	9.1	2.2	1/4"UNF	10.2
20055.W2122	Tip	9.1	3.0	1/4"UNF	10.2
20055.W2123	Tip	9.1	4.0	1/4"UNF	10.2
20055.W2124	Body	12.0	1/4"UNF	-	12.7

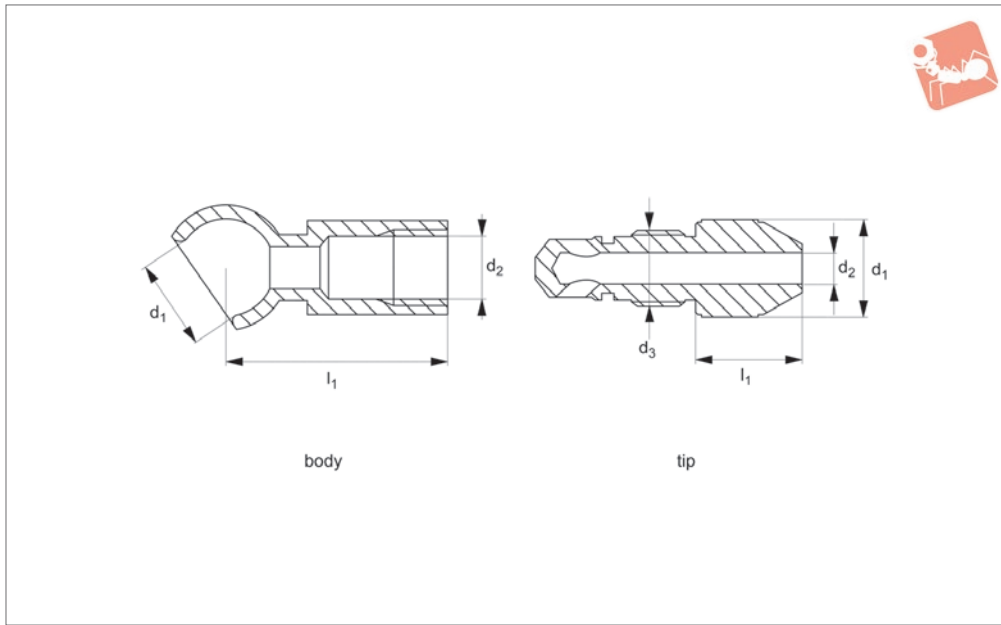




Swivel Max. - Adjustable Spray Nozzle

modular coolant system - max. 6,7 bar

Coolant Nozzles



20056

COOLANT NOZZLES

Material

Body: acetal.
Spray tip: aluminium.

Max. pressure: 6,7 bar.
Please order body and tip separately.

Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20059).

Technical Notes

Max. temperature: 43°C.

Order No.	Type	d ₁	d ₂	d ₃	l ₁
20056.W1150	Tip	12.2	2.2	3/8" UNF	12.7
20056.W2122	Tip	12.2	3.0	3/8" UNF	12.7
20056.W2123	Tip	12.2	4.0	3/8" UNF	12.7
20056.W2124	Body	12.0	3/8" UNF	-	28.5



20059



COOLANT NOZZLES

Tips

For use with our Swivel Max. coolant nozzle system (20051 to 20056).

Order No.
20059.W0001

Type
Assembly Pliers



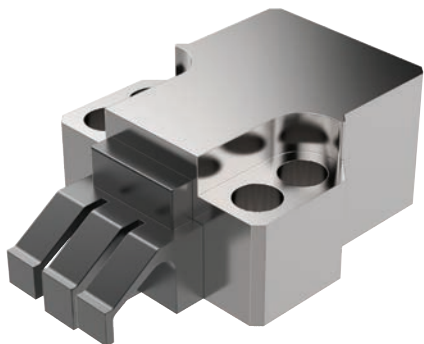
Horizontal Clamping

up to 2.2 tons

Clamping & Height Setting

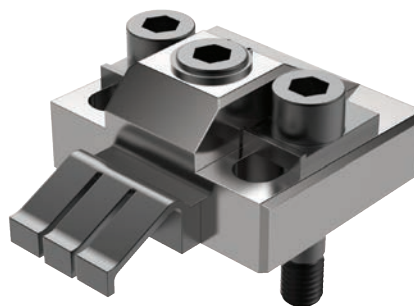


Clamping Torque



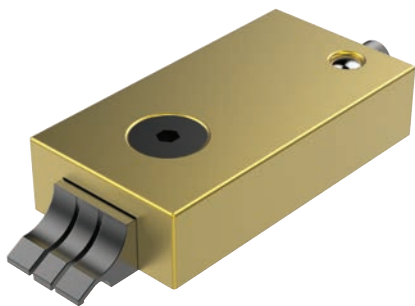
11040/CL2040

Clamping Torque N/m	Clamping Force N
50	23000
40	18000
30	12500
25	11500
20	9500



11070/CL2070

Clamping Torque N/m	Clamping Force N
60	16500
50	15000
40	12000
30	10000
25	8000
20	7000



11081/CL2081

Clamping Torque N/m	Clamping Force N
5	6600
4.5	5500
4	4900



10940/CL0030

Clamping Torque N/m	Clamping Force N
8.5	4000
8	3800
7	3400
6	3000
5	2500
4	2000

COOLANT NOZZLES

ov-W11040-A-T-W10940-A-T-horizontal-clamping-rmh - Updated - 13-10-2022



What Flow Rate of Coolant is Required?

Choose a nozzle with an orifice size that matches your pump's capacity.

Select an orifice size too big and coolant pressure will drop off, an orifice size too small and an inadequate amount of coolant will reach the tool tip and can result in damage.

Note: Flow rates are based on water at 20°. Actual results may vary with fluid type, extension length and aiming angle.

System pressure (bar)	0.35	0.7	1.4	2.0	2.8	4.1	5.5
Orifice diameter (mm)	Flow rate (litres/minute)						
1.02	0.32	0.45	0.64	0.77	0.91	1.18	1.41
1.57	0.86	1.14	1.68	2	2.32	2.82	3.32
2.18	1.64	2.32	3.27	3.86	4.55	5.46	6.82
2.79	2.91	4.09	6.36	7.27	8.18	10	11.37
4.06	6.36	9.09	12.73	15.91	18.18	21.82	25.46
5.59	11.37	16.82	23.64	30.46	35.46	42.28	48.19
System pressure (bar)	6.9	10.3	13.8	20.7	34.5	69.0	103.5
Orifice diameter (mm)	Flow rate (litres/minute)						
1.02	1.59	1.86	2.09	2.77	4	5.46	6.36
1.57	3.64	4.55	5.46	6.82	9.55	13.64	17.28
2.18	7.73	9.09	10.46	12.73	16.82	23.64	28.64
2.79	14.09	16.37	18.64	23.64	29.55	40.46	49.55
4.06	28.19	34.55	41.37	49.1	63.65	90.01	110.47
5.59	53.64	65.46	75.01	89.1	114.56	161.39	197.75

Calculating Coolant Velocity

To calculate the average coolant exit velocity (important in some grinding operations where it is often desirable to match or exceed the peripheral velocity of the wheel) refer to the formula below. Choose an orifice size that produces sufficient back pressure to achieve the desired velocity.

$$V = \frac{(17.11 \times 10^{-5}) \times F}{(d \times 10^{-3})^2}$$

Where;

V = Velocity in m/s

C = Constant of 17.11 x 10⁻⁵

F = Flow rate through orifice in litres/min (see table above)

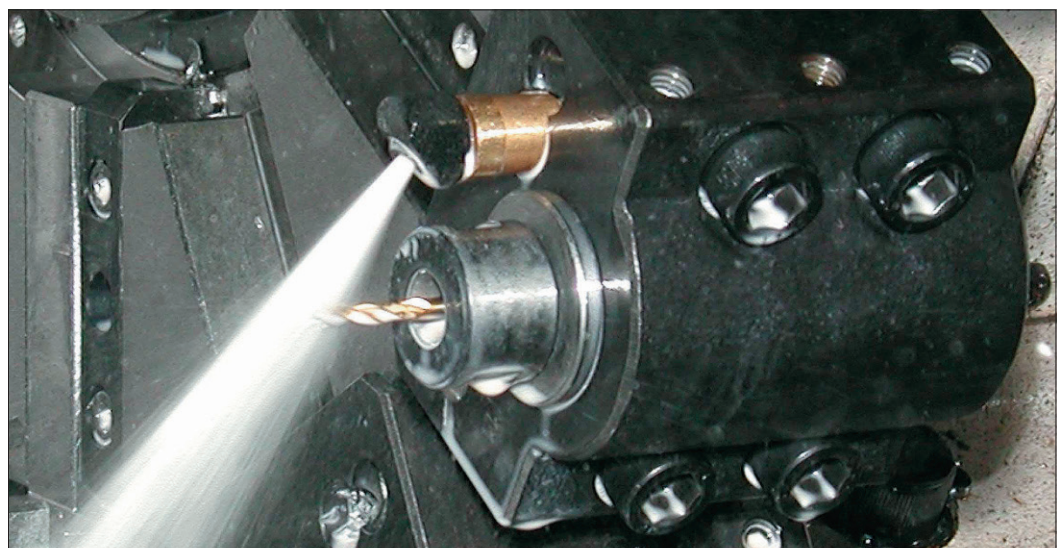
d = Orifice diameter (mm) from product tables

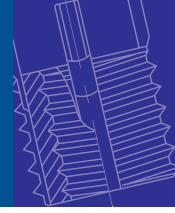
Nozzle Extensions

Choose a nozzle extension that suits your application. Short projections are more compact and less likely to be knocked out of position by swarf or vibration. Longer extensions are easier to aim, produce a more streamline or laminar flow and shoot further.

A Word About Coolant Pumps

The most common coolant pump on CNC machine tools is a single stage centrifugal pump, normally designed to move high volumes of water at low pressure (typically 0.2 to 1.4 bar). Multi-stage centrifugal pumps are capable of higher pressures (typically 1.4 to 14 bar) while still producing high flow rates. Positive displacement pumps are used for very high pressure applications up to 140 bar and are generally used with small diameter orifices due to their lower flow rates.



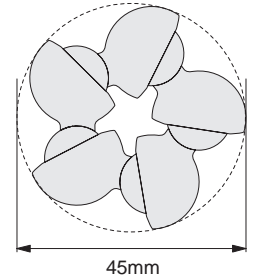


An extremely versatile system with an incredible range of motion in each joint – 72° either side of centreline! It's compact design is ideal for tight spaces. Available with fixed or variable flow nozzles and interchangeable orifices rated to 6.7 bar maximum and available with threaded or spherical bases. Vibration resistant joints provide superior reliability in CNC lathe turrets where inertial forces are high.

Variations

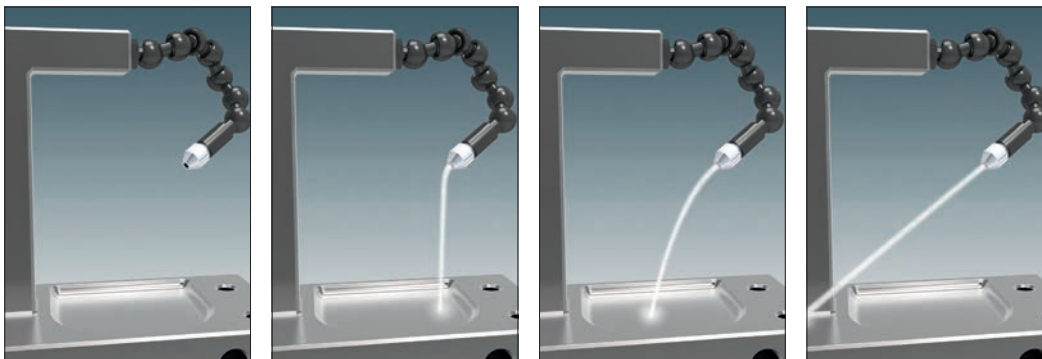


Links swivel 72° either side of centreline enabling it to come full circle within a 45mm inscribed circle.



Applications

The Swival Max coolant nozzle system with fixed flow end nozzles is ideal for CNC lathes due to its compactness and flexibility.



Variable flow end nozzles enable infinite flow control from full shutoff to full flow with fingertip control. They are ideal for manual and CNC mills.



An extremely versatile coolant nozzle system compatible with new and existing installations.

Build your flexible system for your application.

Base



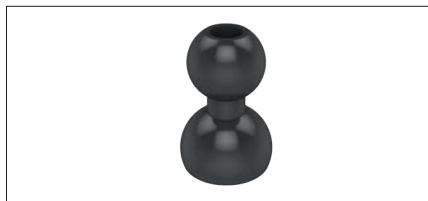
20051 - Brass Base Element
For plain bore and screw location.

OR



20052 - Acetal Base Element
For easy screw in fixing.

Intermediate Links for Maximum Extension and Reach



20053.W0010 - Standard Swivel Max Extension Links

OR



20053.W0120 - Connect from Swivel Max to LocLine.

OR



20053.W0130 - Connect from Swivel Max to SnapLoc.

Alternative Option

Alternatively, connect from either LocLine or SnapLoc to our in-expensive and versatile swivel Max System.



20053.W0140 - Connect from LocLine to Swivel Max

OR



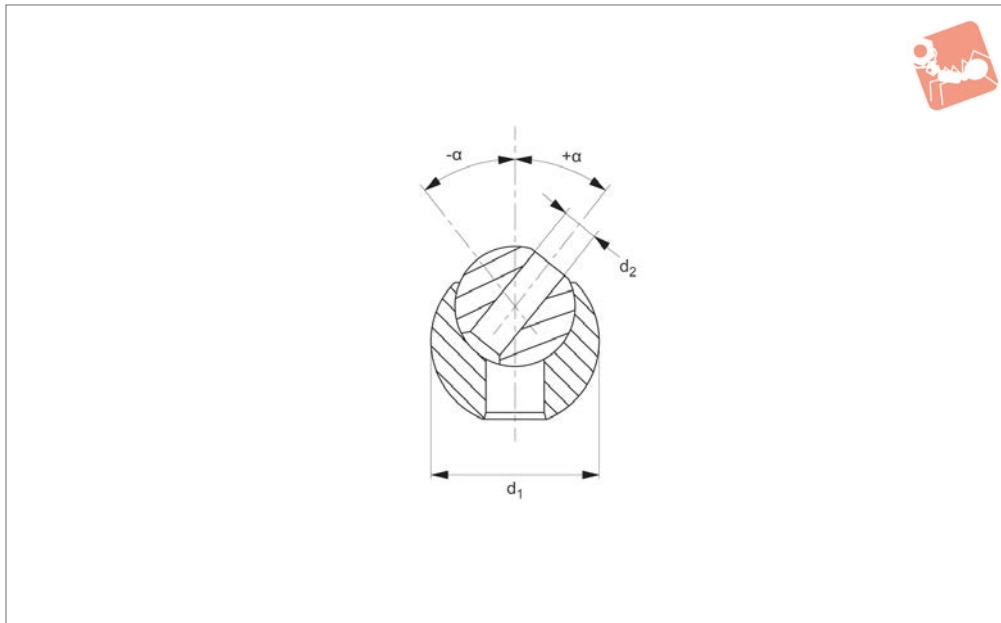
20053.W0150 - Connect from SnapLoc to Swivel Max.



Coolant Nozzles - Black Eye

max. 10 bar

Coolant Nozzles



20000

COOLANT NOZZLES

Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.
symbola/symbol is an angle of adjustment

either side of centre line.
For extension tubes see part nos. 20090 and 20092.
For spray tips see part nos. 20080 and 20082.

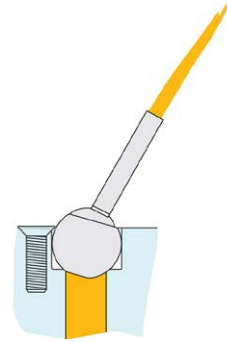
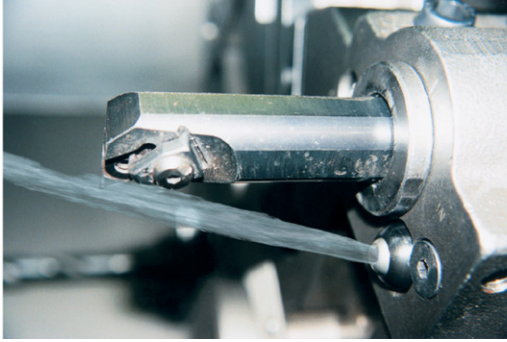
Tips

Easy to aim replacement for basic spherical

coolant nozzles. Install, lock in place then aim the stainless steel ball with the tip of a hex key.

Choose tapped version if you need to use with extension tubes or if occasional plugging of unit is required (set screw included).

Order No.	d ₁	d ₂	Jet bore d ₂	α
20000.W0100	10	2.8	Plain	±35°
20000.W0120	12	4.0	Plain	±35°
20000.W0140	14	4.0	Plain	±35°
20000.W0150	15	4.0	Plain	±35°
20000.W0180	18	4.0	Plain	±35°
20000.W0220	22	5.6	Plain	±35°
20000.W2370	3/8"	2.8	Plain	±35°
20000.W2500	1/2"	4.0	Plain	±35°
20000.W2630	5/8"	4.0	Plain	±35°
20000.W6100	10	M 3,5x0,6	Threaded	±35°
20000.W6120	12	M 4,0x0,7	Threaded	±35°
20000.W6140	14	M 4,0x0,7	Threaded	±35°
20000.W6150	15	M 4,0x0,7	Threaded	±35°
20000.W6180	18	M 5,0x0,8	Threaded	±35°
20000.W6220	22	M 6,0x1,0	Threaded	±35°
20000.W8370	3/8"	M 3,5x0,6	Threaded	±35°
20000.W8500	1/2"	M 4,0x0,7	Threaded	±35°
20000.W8630	5/8"	M 4,0x0,7	Threaded	±35°

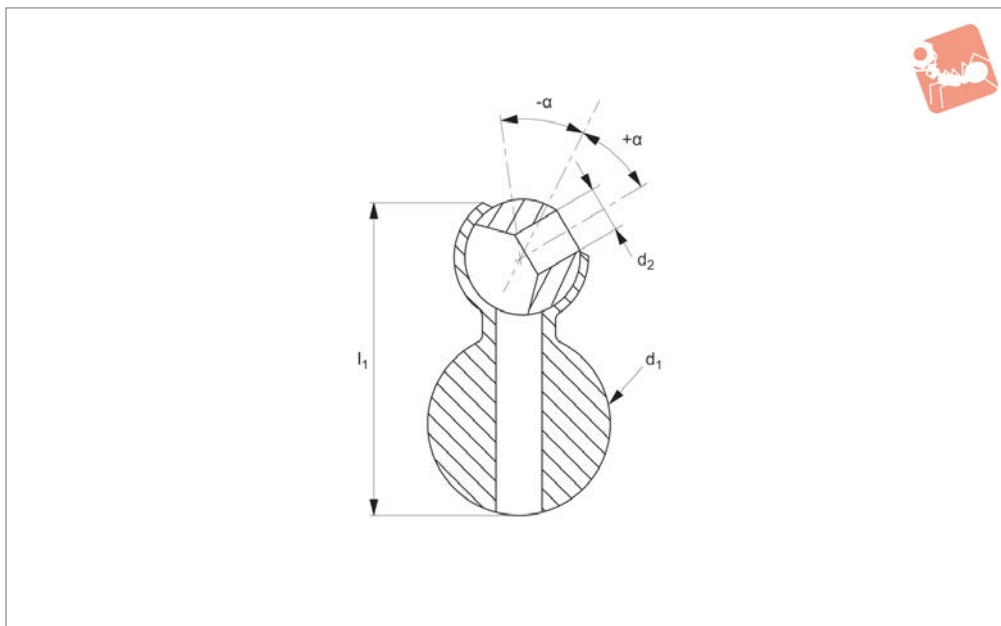




Coolant Nozzles - Bug Eye

max. 10 bar

Coolant Nozzles



20002

COOLANT NOZZLES

Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.

symbol α is an angle of adjustment either side of centre line.

For extension tubes see part nos. 20090 and 20092.

For spray tips see part nos. 20080 and 20082.

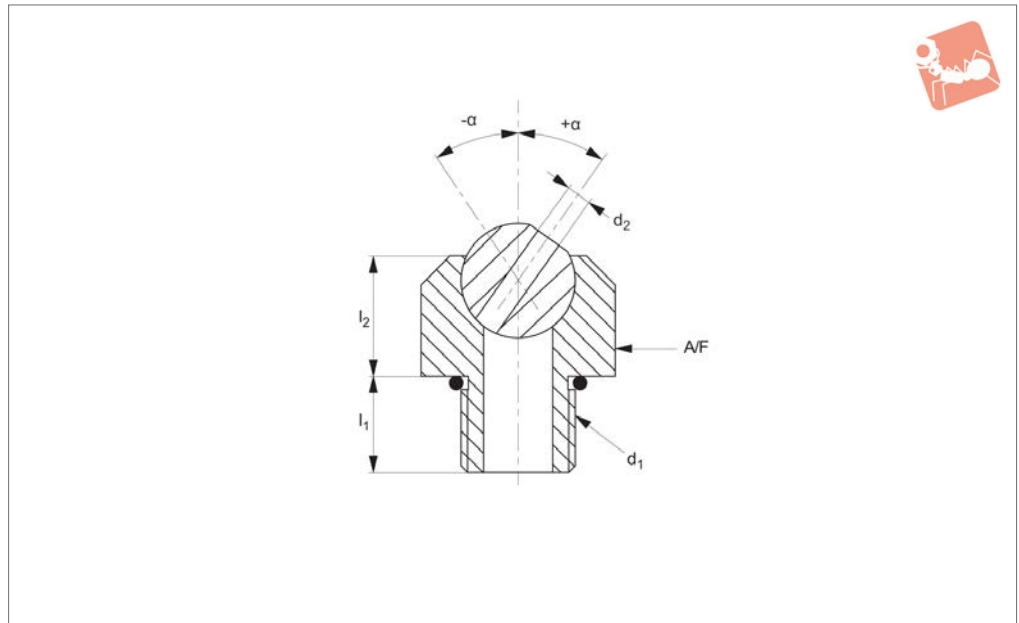
Tips

Extended ball socket for extra „aimability“, still compact. Especially useful for short tool projections.

Order No.	d ₁	d ₂	Jet bore d ₂	l ₁	α
20002.W0120	12	2.8	Plain	28.0	±35°
20002.W0121	12	4.0	Plain	28.0	±35°
20002.W0140	14	2.8	Plain	30.5	±35°
20002.W0141	14	4.0	Plain	30.5	±35°
20002.W0150	15	2.8	Plain	31.2	±35°
20002.W0151	15	4.0	Plain	31.2	±35°
20002.W0220	22	2.8	Plain	38.0	±35°
20002.W0221	22	4.0	Plain	38.0	±35°
20002.W2500	1/2"	2.8	Plain	28.5	±35°
20002.W2501	1/2"	4.0	Plain	28.5	±35°
20002.W2630	5/8"	2.8	Plain	31.2	±35°
20002.W2631	5/8"	4.0	Plain	31.2	±35°
20002.W6120	12	M 6 x 1,0	Threaded	28.0	±35°
20002.W6140	14	M 6 x 1,0	Threaded	30.5	±35°
20002.W6150	15	M 6 x 1,0	Threaded	31.2	±35°
20002.W6220	22	M 6 x 1,0	Threaded	38.0	±35°
20002.W8500	1/2"	M 6 x 1,0	Threaded	28.5	±35°
20002.W8630	5/8"	M 6 x 1,0	Threaded	31.2	±35°



20010



Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.
symbol α /symbol is an angle of adjustment

either side of centre line.
For extension tubes see part nos. 20090 and 20092.
For spray tips see part nos. 20080 and 20082.

Tips

Screws into threaded coolant ports. Large

adjustment angle.
Choose large orifice for maximum flow.
Choose smaller orifices when using multiple nozzles.
Choose tapped ends if nozzle will need to be plugged (set screw included).

Order No.	Thread	d ₁	d ₂	Jet bore d ₂	l ₁	l ₂	α	A/F
20010.W0100	Metric Fine	M10x1,25	4.0	Plain	9.1	10.4	±35°	17
20010.W0101	Metric Fine	M10x1,25	2.8	Plain	9.1	10.4	±35°	17
20010.W1101	Metric Coarse	M10x1,50	4.0	Plain	9.1	10.4	±35°	17
20010.W1102	Metric Coarse	M10x1,50	2.8	Plain	9.1	10.4	±35°	17
20010.W1120	Metric Coarse	M12x1,75	4.0	Plain	9.1	10.4	±35°	17
20010.W1121	Metric Coarse	M12x1,75	2.8	Plain	9.9	10.4	±35°	17
20010.W2130	NPT-BSPT	1/8	4.0	Plain	9.9	10.4	±35°	17
20010.W2131	NPT-BSPT	1/8	2.8	Plain	12.7	10.4	±35°	17
20010.W2250	NPT-BSPT	1/4	4.0	Plain	12.7	10.4	±35°	17
20010.W2251	NPT-BSPT	1/4	2.8	Plain	12.7	10.4	±35°	17
20010.W2380	NPT-BSPT	3/8	4.0	Plain	12.7	10.4	±35°	17
20010.W2381	NPT-BSPT	3/8	5.6	Plain	12.7	10.4	±35°	17
20010.W2382	NPT-BSPT	3/8	M 5x0,8	Threaded	9.1	10.4	±35°	17
20010.W6100	Metric Fine	M10x1,25	M 5x0,8	Threaded	9.1	10.4	±35°	17
20010.W7100	Metric Coarse	M10x1,50	M 5x0,8	Threaded	9.1	10.4	±35°	17
20010.W7120	Metric Coarse	M12x1,75	M 5x0,8	Threaded	9.9	10.4	±35°	17
20010.W8130	NPT-BSPT	1/8	M 5x0,8	Threaded	12.7	10.4	±35°	17
20010.W8131	NPT-BSPT	1/4	M 6x1,0	Threaded	12.7	10.4	±35°	17
20010.W8381	NPT-BSPT	3/8	M 6x1,0	Threaded	12.7	10.4	±35°	17

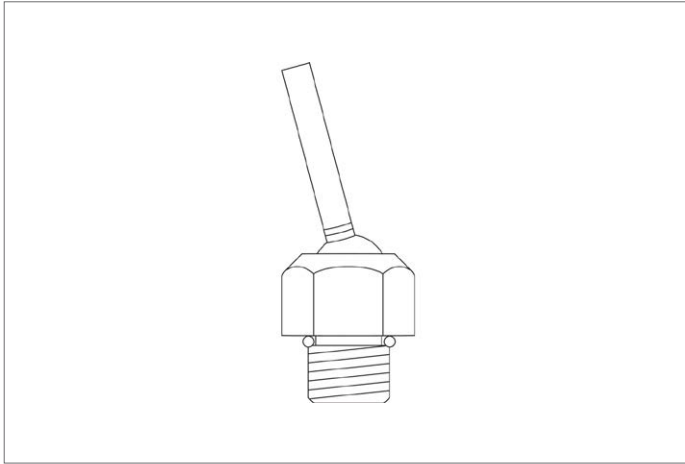


Coolant Nozzles - Jet Bolt - Compact

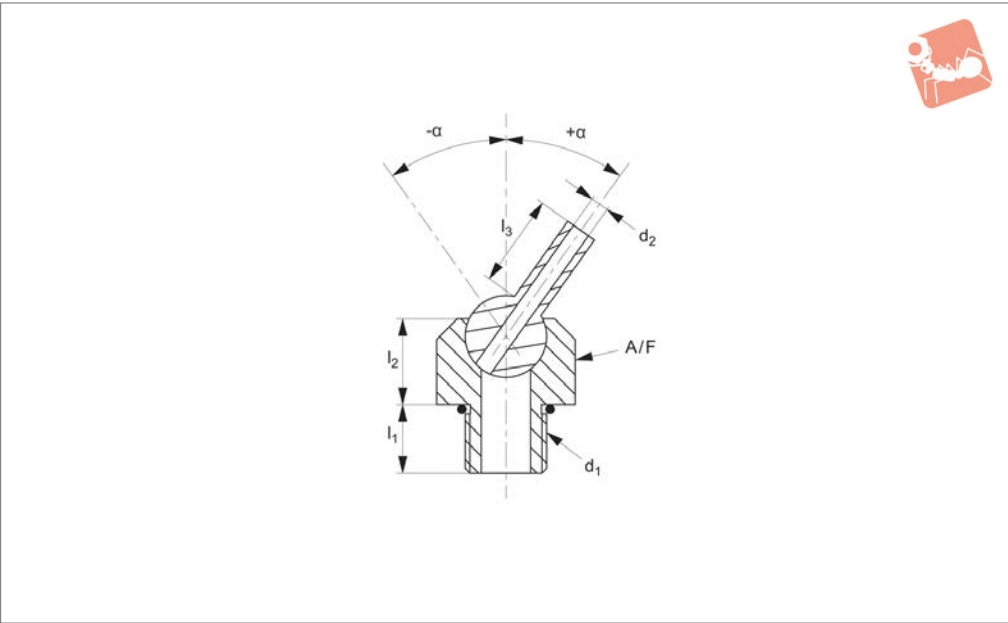
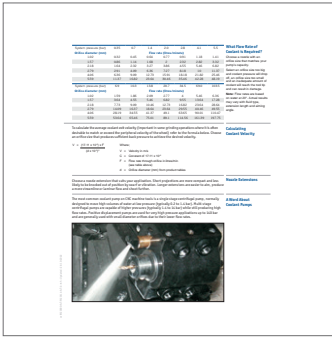
max. 10 bar



Coolant Nozzles



COOLANT NOZZLES



COOLANT NOZZLES

20012

Material

Body: acetal.
Ball and tube: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.

symbola/symbol is an angle of adjustment either side of centre line.

Tips

Screws into threaded coolant ports. Large adjustment angle.
Choose large orifice for maximum flow.

Choose smaller orifices when using multiple nozzles.

Choose tapped ends if nozzle will need to be plugged (set screw included).

Order No.	Thread	d ₁	d ₂	l ₁	l ₂	l ₃	α	A/F
20012.W0100	Metric Fine	M10x1,25	2.8	9.2	10.4	6.4	±35°	17
20012.W0101	Metric Fine	M10x1,25	2.8	9.2	10.4	12.7	±35°	17
20012.W0102	Metric Fine	M10x1,25	2.8	9.2	10.4	31.7	±35°	17
20012.W0103	Metric Fine	M10x1,25	4.0	9.2	10.4	12.7	±35°	17
20012.W0104	Metric Fine	M10x1,25	4.0	9.2	10.4	31.7	±35°	17
20012.W0201	Metric Fine	M20x1,50	4.0	12.7	15.2	19.0	±35°	24
20012.W0202	Metric Fine	M20x1,50	4.0	12.7	15.2	38.0	±35°	24
20012.W0203	Metric Fine	M20x1,50	5.6	12.7	15.2	19.0	±35°	24
20012.W0204	Metric Fine	M20x1,50	5.6	12.7	15.2	38.0	±35°	24
20012.W0205	Metric Fine	M20x1,50	7.1	12.7	15.2	19.0	±35°	24
20012.W0206	Metric Fine	M20x1,50	7.1	12.7	15.2	38.0	±35°	24
20012.W1100	Metric Coarse	M10x1,50	2.8	9.2	10.4	6.4	±35°	17
20012.W1101	Metric Coarse	M10x1,50	2.8	9.2	10.4	12.7	±35°	17
20012.W1102	Metric Coarse	M10x1,50	2.8	9.2	10.4	31.7	±35°	17
20012.W1103	Metric Coarse	M10x1,50	4.0	9.2	10.4	12.7	±35°	17
20012.W1104	Metric Coarse	M10x1,50	4.0	9.2	10.4	31.7	±35°	17
20012.W1121	Metric Coarse	M12x1,75	2.8	9.2	10.4	6.4	±35°	17
20012.W1122	Metric Coarse	M12x1,75	2.8	9.2	10.4	12.7	±35°	17
20012.W1123	Metric Coarse	M12x1,75	2.8	9.2	10.4	31.7	±35°	17
20012.W1124	Metric Coarse	M12x1,75	4.0	9.2	10.4	12.7	±35°	17
20012.W1125	Metric Coarse	M12x1,75	4.0	9.2	10.4	31.7	±35°	17
20012.W2130	NPT-BSPT	1/8"	2.8	9.9	10.4	6.4	±35°	17
20012.W2131	NPT-BSPT	1/8"	2.8	9.9	10.4	12.7	±35°	17
20012.W2132	NPT-BSPT	1/8"	2.8	9.9	10.4	31.7	±35°	17
20012.W2133	NPT-BSPT	1/8"	4.0	9.9	10.4	12.7	±35°	17
20012.W2134	NPT-BSPT	1/8"	4.0	9.9	10.4	31.7	±35°	17
20012.W2250	NPT-BSPT	1/4"	2.8	12.7	10.4	6.4	±35°	17
20012.W2251	NPT-BSPT	1/4"	2.8	12.7	10.4	12.7	±35°	17
20012.W2252	NPT-BSPT	1/4"	2.8	12.7	10.4	31.7	±35°	17
20012.W2253	NPT-BSPT	1/4"	4.0	12.7	10.4	12.7	±35°	17
20012.W2254	NPT-BSPT	1/4"	4.0	12.7	10.4	31.7	±35°	17
20012.W2380	NPT-BSPT	3/8"	2.8	12.7	10.4	12.7	±35°	17



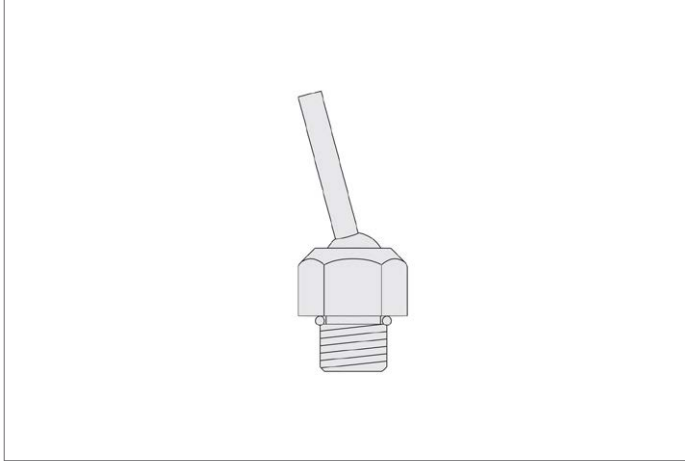
Coolant Nozzles - Jet Bolt

with tube - max. 10 bar

Coolant Nozzles

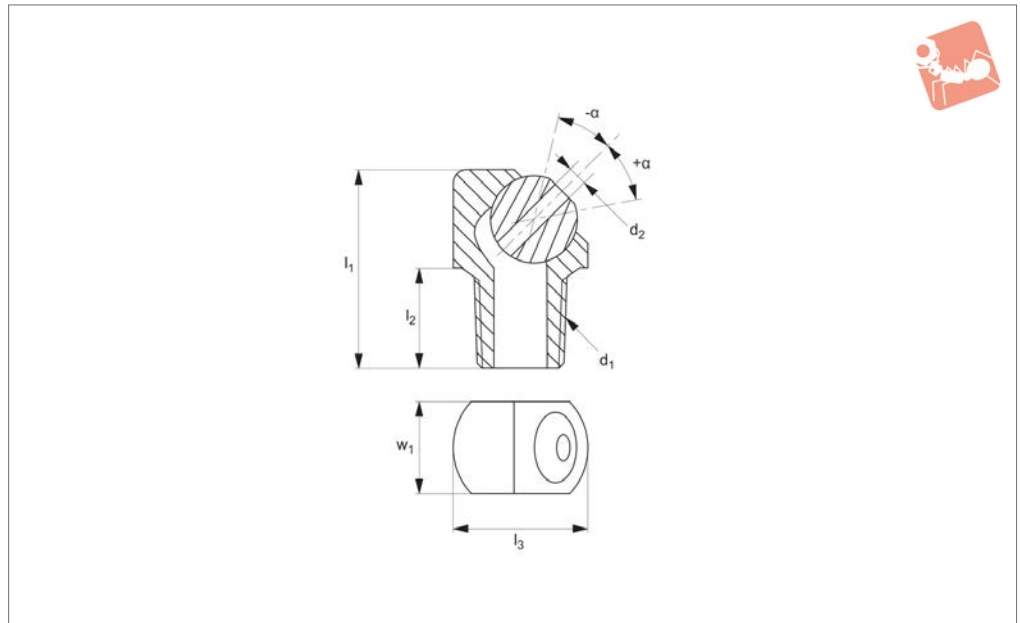


Order No.	Thread	d ₁	d ₂	l ₁	l ₂	l ₃	α	A/F
20012.W2381	NPT-BSPT	3/8"	2.8	12.7	10.4	31.7	±35°	17
20012.W2382	NPT-BSPT	3/8"	4.0	12.7	10.4	12.7	±35°	17
20012.W2383	NPT-BSPT	3/8"	4.0	12.7	10.4	31.7	±35°	17
20012.W2384	NPT-BSPT	3/8"	5.6	12.7	10.4	12.7	±35°	17
20012.W2385	NPT-BSPT	3/8"	5.6	12.7	10.4	31.7	±35°	17





20016



Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.
symbol α /symbol is an angle of adjustment either side of centre line.

For extension tubes see part nos. 20090 and 20092.

For spray tips see part nos. 20080 and 20082.

Tips

Converts any NPT or BSPT hole to a fully adjustable nozzle.

Easy adjustment.

Choose large orifice for maximum flow and smaller orifices when using multiple nozzles.

Choose tapped tube if the nozzle needs to be plugged (set screw included).

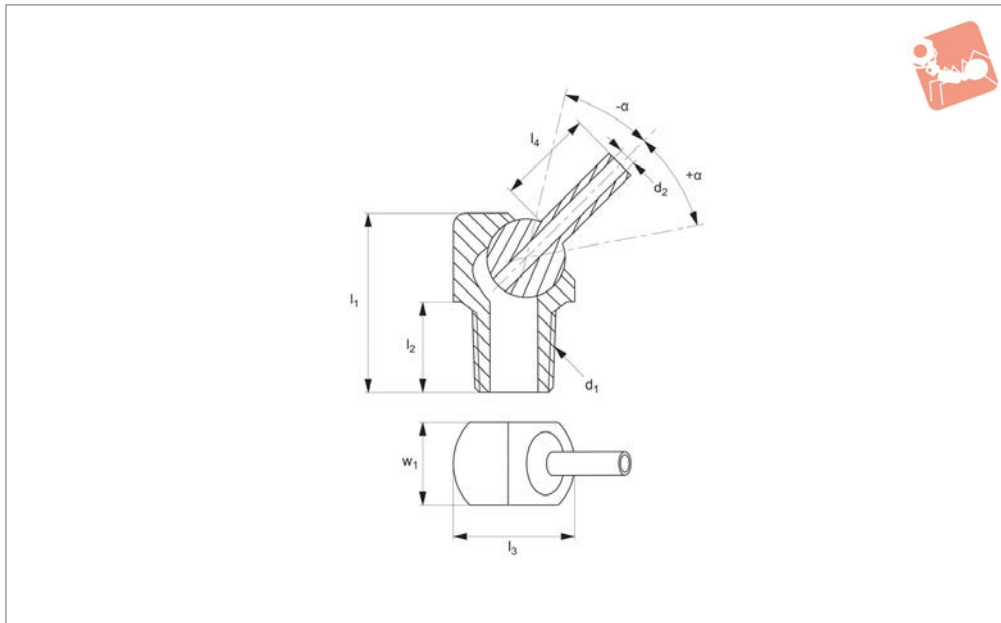
Order No.	d_1	d_2	Jet bore d_2	l_1	l_2	l_3	w_1	α
20016.W2060	1/16" NPT/BSPT	2.8	Plain	17.5	7.9	12.7	11.2	$\pm 35^\circ$
20016.W2061	1/16" NPT/BSPT	4.0	Plain	17.5	7.9	12.7	11.2	$\pm 35^\circ$
20016.W2120	1/8" NPT/BSPT	2.8	Plain	20.8	9.7	16.0	12.7	$\pm 35^\circ$
20016.W2121	1/8" NPT/BSPT	4.0	Plain	20.8	9.7	16.0	12.7	$\pm 35^\circ$
20016.W2250	1/4" NPT/BSPT	2.8	Plain	23.9	11.2	19.1	16.0	$\pm 35^\circ$
20016.W2251	1/4" NPT/BSPT	4.0	Plain	23.9	11.2	19.1	16.0	$\pm 35^\circ$
20016.W2370	3/8" NPT/BSPT	2.8	Plain	28.7	12.7	22.4	19.1	$\pm 35^\circ$
20016.W2371	3/8" NPT/BSPT	4.0	Plain	28.7	12.7	22.4	19.1	$\pm 35^\circ$
20016.W2372	3/8" NPT/BSPT	5.6	Plain	28.7	12.7	22.4	19.1	$\pm 35^\circ$
20016.W8060	1/16" NPT/BSPT	M 4x0,7	Threaded	17.5	7.9	12.7	11.2	$\pm 35^\circ$
20016.W8120	1/8" NPT/BSPT	M 5x0,8	Threaded	20.8	9.7	16.0	12.7	$\pm 35^\circ$
20016.W8250	1/4" NPT/BSPT	M 5x0,8	Threaded	23.9	11.2	19.1	16.0	$\pm 35^\circ$
20016.W8370	3/8" NPT/BSPT	M 6x1,0	Threaded	28.7	12.7	22.4	19.1	$\pm 35^\circ$



Coolant Nozzles - Turret Jet

with tube - max. 10 bar

Coolant Nozzles



20018

COOLANT NOZZLES

Material

Body: acetal.
Ball and tube: stainless steel.

Max. pressure 10 bar.
symbola/symbol is an angle of adjustment
either side of centre line.

adjustable nozzle.
Easy adjustment.
Choose large orifice for maximum flow and
smaller orifices when using multiple
nozzles.

Technical Notes

Max. temperature 70°C.

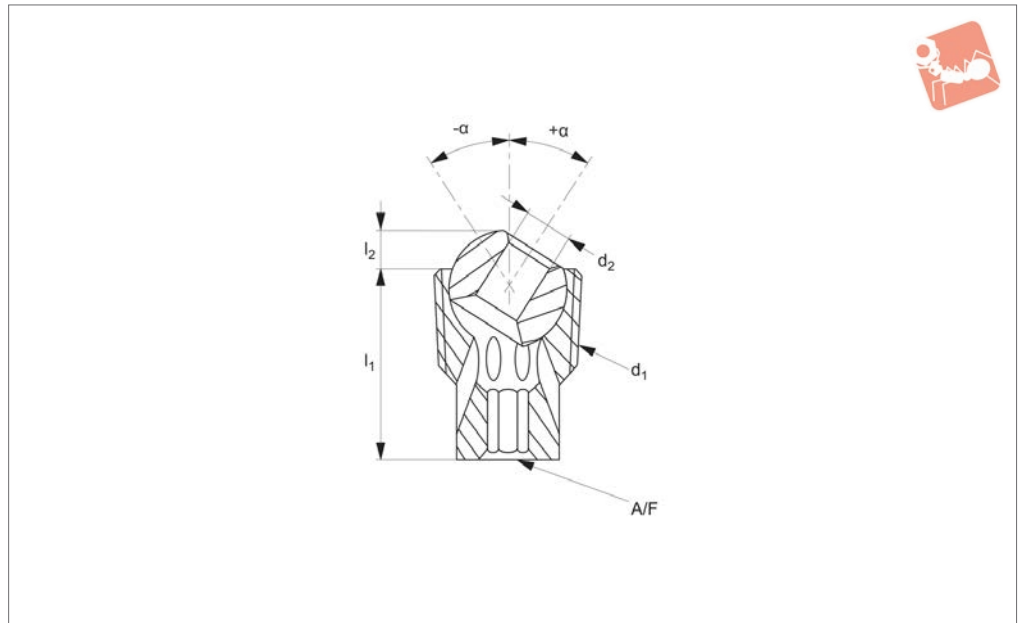
Tips

Converts any NPT or BSPT hole to a fully

Order No.	d ₁	d ₂	l ₁	l ₂	l ₃	l ₄	w ₁	α
20018.W2060	1/16" NPT/BSPT	2.2	17.5	7.9	12.7	6.4	11.2	±35°
20018.W2061	1/16" NPT/BSPT	2.2	17.5	7.9	12.7	12.7	11.2	±35°
20018.W2062	1/16" NPT/BSPT	2.2	17.5	7.9	12.7	31.7	11.2	±35°
20018.W2063	1/16" NPT/BSPT	2.8	17.5	7.9	12.7	6.4	11.2	±35°
20018.W2064	1/16" NPT/BSPT	2.8	17.5	7.9	12.7	12.7	11.2	±35°
20018.W2065	1/16" NPT/BSPT	2.8	17.5	7.9	12.7	31.7	11.2	±35°
20018.W2121	1/8" NPT/BSPT	2.8	20.8	9.7	16.0	6.4	12.7	±35°
20018.W2122	1/8" NPT/BSPT	2.8	20.8	9.7	16.0	12.7	12.7	±35°
20018.W2123	1/8" NPT/BSPT	2.8	20.8	9.7	16.0	31.7	12.7	±35°
20018.W2124	1/8" NPT/BSPT	4.0	20.8	9.7	16.0	12.7	12.7	±35°
20018.W2125	1/8" NPT/BSPT	4.0	20.8	9.7	16.0	31.7	12.7	±35°
20018.W2250	1/4" NPT/BSPT	2.8	23.9	11.2	19.1	6.4	16.0	±35°
20018.W2251	1/4" NPT/BSPT	2.8	23.9	11.2	19.1	12.7	16.0	±35°
20018.W2252	1/4" NPT/BSPT	2.8	23.9	11.2	19.1	31.7	16.0	±35°
20018.W2253	1/4" NPT/BSPT	4.0	23.9	11.2	19.1	12.7	16.0	±35°
20018.W2254	1/4" NPT/BSPT	4.0	23.9	11.2	19.1	31.7	16.0	±35°
20018.W2370	3/8" NPT/BSPT	2.8	28.7	12.7	22.4	31.7	19.1	±35°
20018.W2371	3/8" NPT/BSPT	4.0	28.7	12.7	22.4	12.7	19.1	±35°
20018.W2372	3/8" NPT/BSPT	4.0	28.7	12.7	22.4	31.7	19.1	±35°
20018.W2373	3/8" NPT/BSPT	5.6	28.7	12.7	22.4	12.7	19.1	±35°
20018.W2374	3/8" NPT/BSPT	5.6	28.7	12.7	22.4	31.7	19.1	±35°



20020



Material

Body: acetal.
Ball: stainless steel.

Max. pressure 10 bar.
symbola/symbol is an angle of adjustment either side of centre line.

Insert hex. key (provided), into the top of the nozzle until it engages with the hex. socket. Screw in until the body is flush.

Technical Notes

Max. temperature 70°C.

Tips

Screw-in, flush mount coolant nozzles.

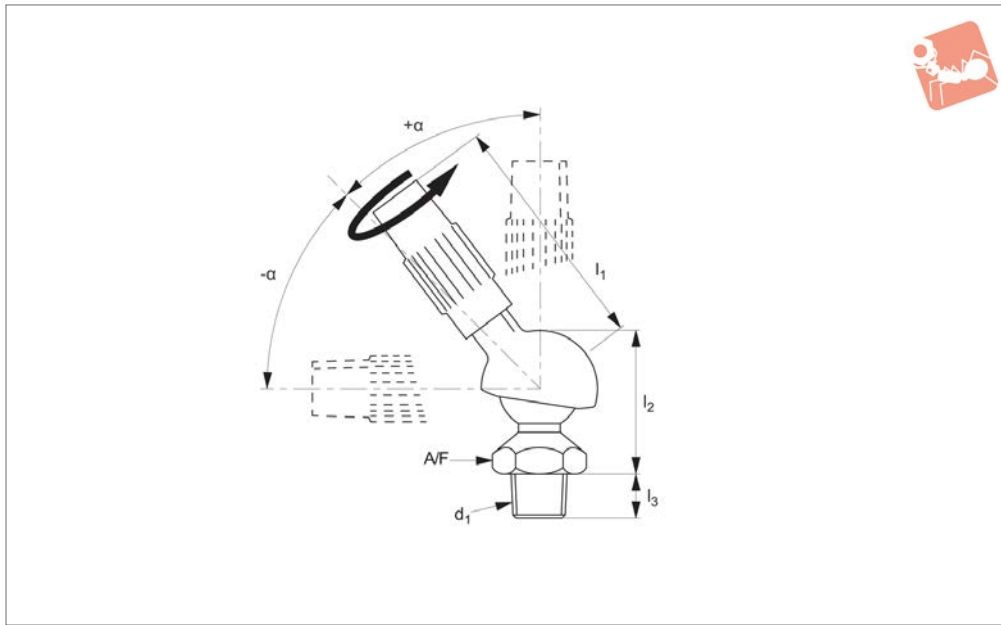
Order No.	d ₁	d ₂	l ₁	l ₂	α	A/F
20020.W2121	1/8" NPT	4.0	12.7	3.0	±35°	9/64"
20020.W2122	1/8" BSPT	4.0	12.7	3.0	±35°	9/64"
20020.W2250	1/4" NPT/BSPT	4.0	15.7	3.8	±40°	9/64"
20020.W2370	3/8" NPT/BSPT	5.6	19.1	4.6	±40°	3/16"



Coolant Nozzles - Mill Jet

max. 6,7 bar

Coolant Nozzles



20024

COOLANT NOZZLES

Material

Acetal.

Technical Notes

Max. temperature 70°C.

Max. pressure 10 bar.

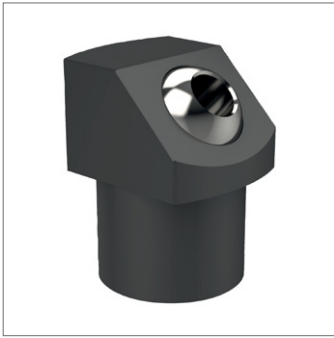
symbol α /symbol is an angle of adjustment either side of centre line.

Recommended coolant filtration - 100 microns.

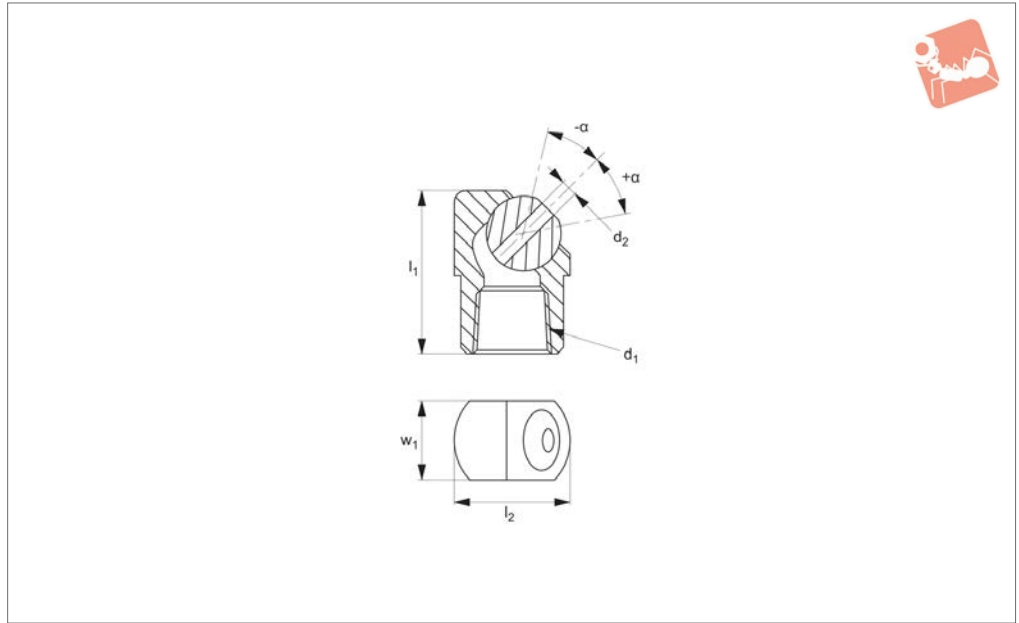
Tips

Adjustable spray nozzle, from full shut-off to fine spray, to direct stream. Remains in position.

Order No.	Angle	Rotation	d_1	l_1	l_2	l_3	α	A/F
20024.W2120	90°	360°	1/4" NPT/BSPT	43	27	11	±45°	16
20024.W2250	90°	360°	1/8" NPT/BSPT	43	27	11	±45°	16



20031



Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.

symbola/symbol is an angle of adjustment either side of centre line.

Can be used with brass connector 20034.

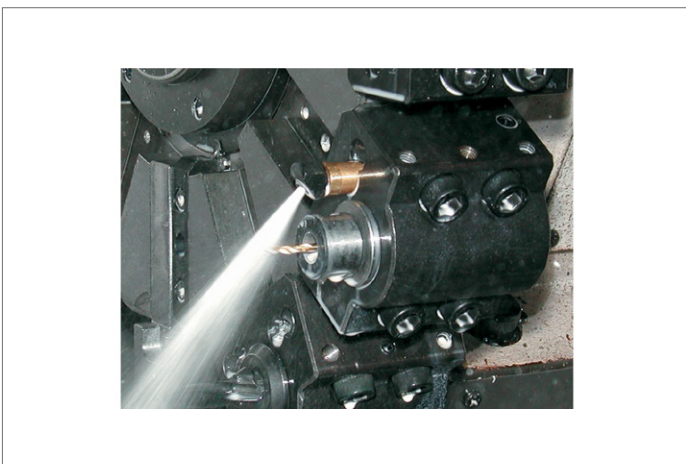
Tips

Screws onto any NPT or BSPT pipe.
Choose large orifice for maximum flow and

smaller orifices when using multiple nozzles.

Choose tapped tube if the nozzles needs to be plugged (set screw included).

Order No.	d ₁	d ₂	Jet bore d ₂	l ₁	l ₂	w ₁	α
20031.W2120	1/8" NPT/BSPT	2.8	Plain	20.8	16.0	12.7	±35°
20031.W2121	1/8" NPT/BSPT	4.0	Plain	20.8	16.0	12.7	±35°
20031.W2250	1/4" NPT/BSPT	2.8	Plain	23.9	19.1	16.0	±35°
20031.W2251	1/4" NPT/BSPT	4.0	Plain	23.9	19.1	16.0	±35°
20031.W2370	3/8" NPT/BSPT	2.8	Plain	28.7	22.4	19.1	±35°
20031.W2371	3/8" NPT/BSPT	4.0	Plain	28.7	22.4	19.1	±35°
20031.W2372	3/8" NPT/BSPT	5.5	Plain	28.7	22.4	19.1	±35°
20031.W8120	1/8" NPT/BSPT	M 5x0,8	Threaded	20.8	16.0	12.7	±35°
20031.W8250	1/4" NPT/BSPT	M 5x0,8	Threaded	23.9	19.1	16.0	±35°
20031.W8370	3/8" NPT/BSPT	M 6x1,0	Threaded	28.7	22.4	19.1	±35°

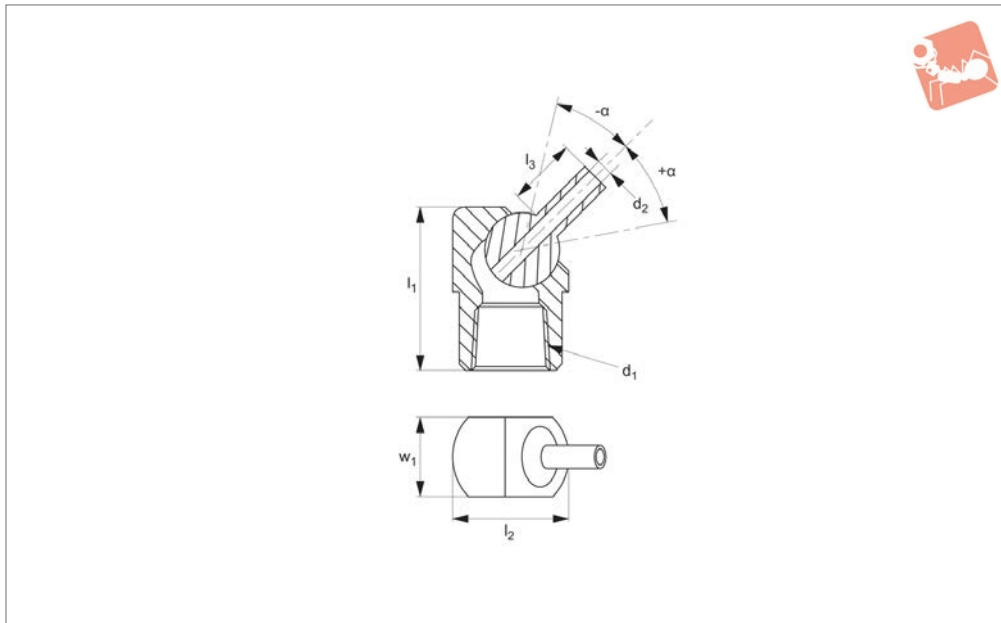




Coolant Nozzles - Cap Jet

with tube - max. 10 bar

Coolant Nozzles



20032

COOLANT NOZZLES

Material

Body: acetal.
Ball and tube: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 10 bar.

symbola/symbol is an angle of adjustment either side of centre line.

Can be used with brass connector 20034.

Tips

Screws onto any NPT or BSPT pipe.
Choose large orifice for maximum flow and

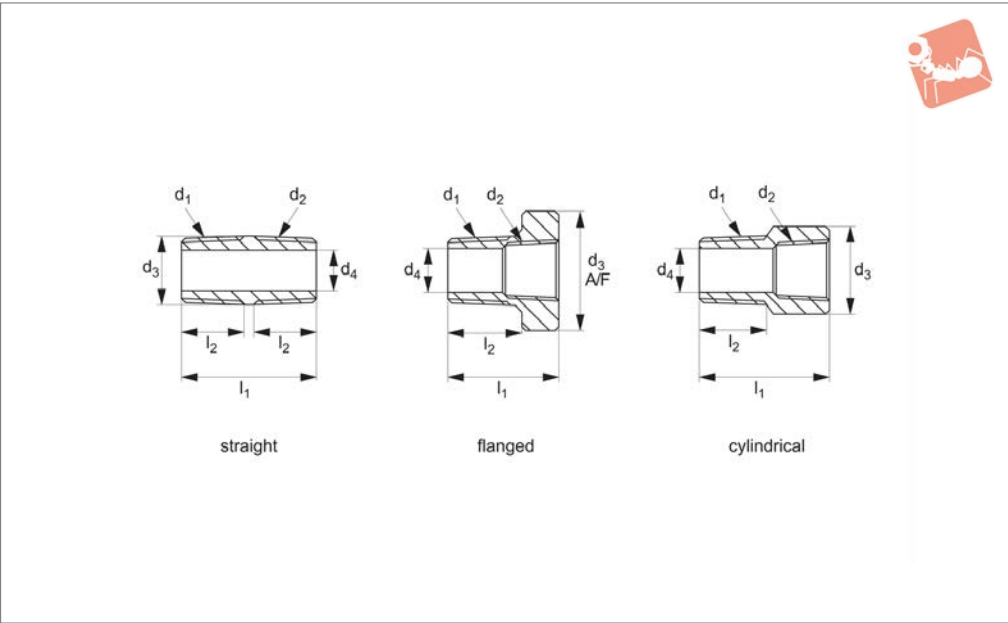
smaller orifices when using multiple nozzles.

Choose tapped tube if the nozzles needs to be plugged (set screw included).

Order No.	d ₁	d ₂	l ₁	l ₂	l ₃	w ₁	α
20032.W2120	1/8" NPT/BSPT	2.8	20.8	16.0	6.4	12.7	±35°
20032.W2121	1/8" NPT/BSPT	2.8	20.8	16.0	12.7	12.7	±35°
20032.W2122	1/8" NPT/BSPT	2.8	20.8	16.0	31.7	12.7	±35°
20032.W2123	1/8" NPT/BSPT	4.0	20.8	16.0	12.7	12.7	±35°
20032.W2124	1/8" NPT/BSPT	4.0	20.8	16.0	31.7	12.7	±35°
20032.W2250	1/4" NPT/BSPT	2.8	23.9	19.1	6.4	16.0	±35°
20032.W2251	1/4" NPT/BSPT	2.8	23.9	19.1	12.7	16.0	±35°
20032.W2252	1/4" NPT/BSPT	2.8	23.9	19.1	31.7	16.0	±35°
20032.W2253	1/4" NPT/BSPT	4.0	23.9	19.1	12.7	16.0	±35°
20032.W2254	1/4" NPT/BSPT	4.0	23.9	19.1	31.7	16.0	±35°
20032.W2370	3/8" NPT/BSPT	4.0	28.7	22.4	31.7	19.1	±35°
20032.W2371	3/8" NPT/BSPT	4.0	28.7	22.4	12.7	19.1	±35°
20032.W2372	3/8" NPT/BSPT	5.6	28.7	22.4	12.7	19.1	±35°
20032.W2373	3/8" NPT/BSPT	5.6	28.7	22.4	31.7	19.1	±35°



20034



Material

Body: acetal or brass.

Technical Notes

Acetal Type:

Max. temperature: 70°C.

Max. pressure: 10 bar.

Brass Type:

Max. temperature: 150°C.

Max. pressure: 100 bar.

Connector only.

Tips

Fits both NPT and BSPT threads - allows you to use inch or metric fittings and nozzles. Particularly useful for 20018 (turret jets) and 20032 (cap jets).

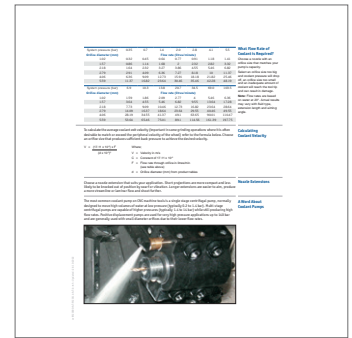
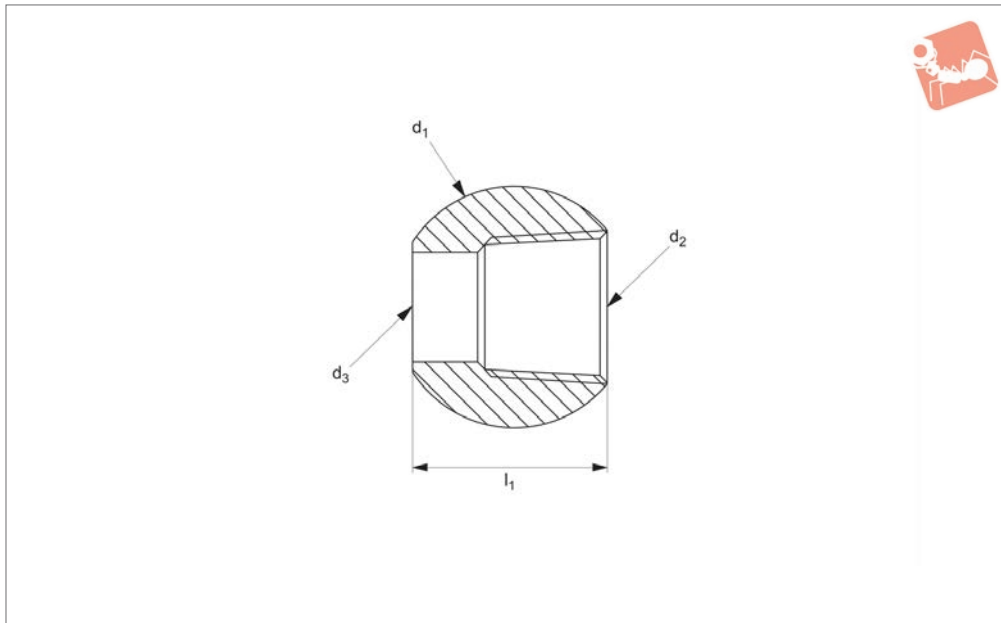
Order No.	Material	Type	d ₃	d ₄	l ₁	l ₂	Thread d ₁	Thread d ₂
20034.W3120-A	Acetal	Straight	10.4	6.4	20.0	10	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W3250-A	Acetal	Straight	13.5	7.9	22.0	11	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W3370-A	Acetal	Straight	16.8	11.2	25.0	13	3/8" NPT/BSPT	3/8" NPT/BSPT
20034.W3121-A	Acetal	Straight	10.4	6.4	38.0	9	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W3251-A	Acetal	Straight	13.5	7.9	38.0	11	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W3371-A	Acetal	Straight	16.8	11.2	38.0	13	3/8" NPT/BSPT	3/8" NPT/BSPT
20034.W4250-A	Acetal	Flanged	14.2	7.9	16.5	11	1/4" NPT/BSPT	1/8" NPT/BSPT
20034.W4370-A	Acetal	Flanged	19.0	10.7	18.5	13	3/8" NPT/BSPT	1/4" NPT/BSPT
20034.W5120-A	Acetal	Cylindrical	11.7	6.4	20.0	10	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W5250-A	Acetal	Cylindrical	15.2	7.9	24.0	13	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W5370-A	Acetal	Cylindrical	18.5	9.4	26.0	14	3/8" NPT/BSPT	3/8" NPT/BSPT
20034.W3120-B	Brass	Straight	10.4	6.3	20.0	10	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W3250-B	Brass	Straight	13.5	7.9	22.0	11	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W3370-B	Brass	Straight	16.8	11.2	25.0	13	3/8" NPT/BSPT	3/8" NPT/BSPT
20034.W3121-B	Brass	Straight	10.4	6.4	38.0	9	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W3251-B	Brass	Straight	13.5	7.9	38.0	11	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W3371-B	Brass	Straight	16.8	11.2	38.0	13	3/8" NPT/BSPT	3/8" NPT/BSPT
20034.W4120-B	Brass	Flanged	14.2	7.0	20.6	13	M12x1,75	1/8" NPT/BSPT
20034.W4140-B	Brass	Flanged	15.7	7.9	10.2	7	M14x1,00	1/8" NPT/BSPT
20034.W4250-B	Brass	Flanged	14.2	7.9	16.5	11	1/4" NPT/BSPT	1/8" NPT/BSPT
20034.W4370-B	Brass	Flanged	19.0	10.7	18.5	13	3/8" NPT/BSPT	1/4" NPT/BSPT
20034.W5120-B	Brass	Cylindrical	11.7	6.4	20.0	10	1/8" NPT/BSPT	1/8" NPT/BSPT
20034.W5250-B	Brass	Cylindrical	15.2	7.9	24.0	13	1/4" NPT/BSPT	1/4" NPT/BSPT
20034.W5370-B	Brass	Cylindrical	18.5	9.4	26.0	14	3/8" NPT/BSPT	3/8" NPT/BSPT



Coolant Nozzles - Adapter Balls

max. 10 bar

Coolant Nozzles



20035

COOLANT NOZZLES

Material

Acetal or brass.

Technical Notes

Acetal Type:

Max. temperature: 70°C.

Max. pressure: 10 bar.

Brass type:

Max. temperature: 150°C.

Max. pressure: 33 bar.

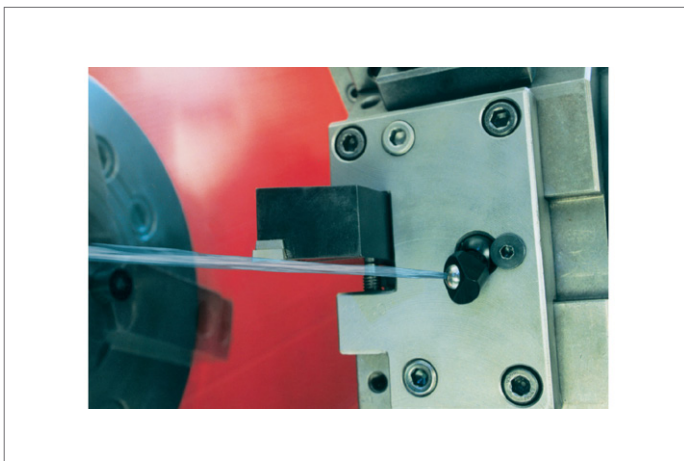
Ball adapter only.

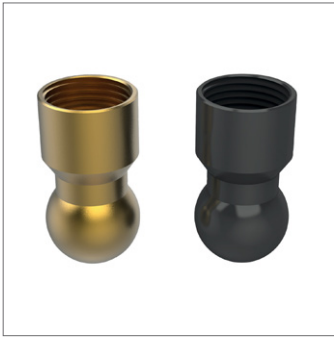
Can be used with our relevant threaded coolant nozzles.

Tips

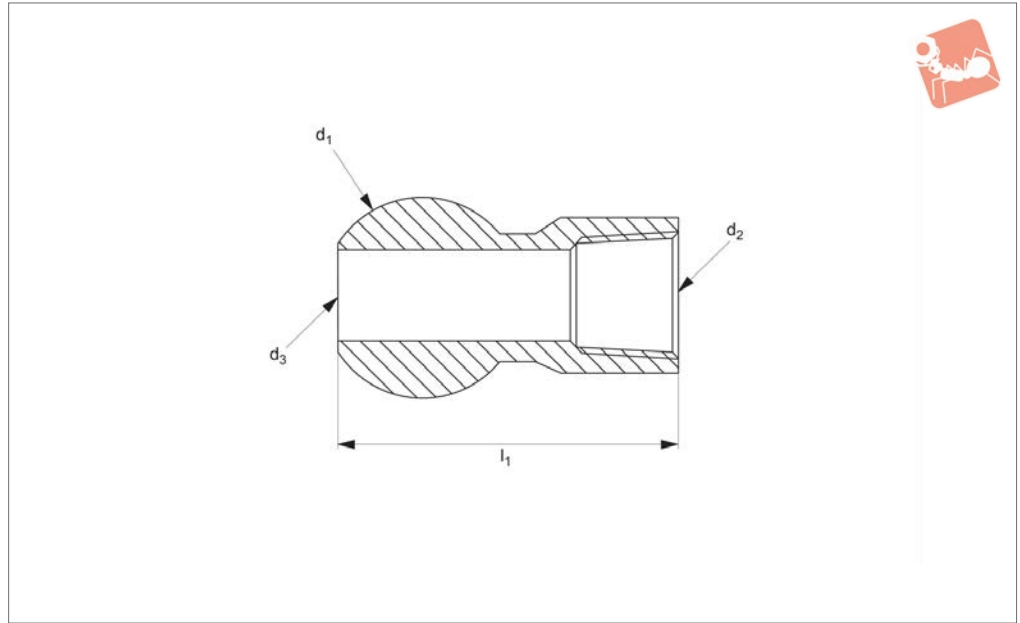
Fits both NPT and BSPT threads - allows you to use inch or metric fittings and nozzles. Particularly useful for 20018 (turret jets) and 20032 (cap jets).

Order No.	Type	d ₁	d ₃	l ₁	Thread d ₂
20035.W6140-A	Acetal	14	6.4	9.7	1/8" NPT/BSPT
20035.W6150-A	Acetal	15	6.4	10.9	1/8" NPT/BSPT
20035.W6220-A	Acetal	22	6.4	18.8	1/8" NPT/BSPT
20035.W8630-A	Acetal	5/8"	6.4	11.9	1/8" NPT/BSPT
20035.W6140-B	Brass	14	7/32" Hex.	9.9	1/8" NPT/BSPT
20035.W6150-B	Brass	15	7/32" Hex.	11.4	1/8" NPT/BSPT
20035.W6220-B	Brass	22	7/32" Hex.	19.6	1/8" NPT/BSPT
20035.W8630-B	Brass	5/8"	7/32" Hex.	12.5	1/8" NPT/BSPT





20036



Material

Acetal or brass.

Max. temp: 70°C.

Max. pressure: 10 bar.

Max. pressure: 33 bar.

Extended ball adapter only.

Technical Notes

Acetal type:

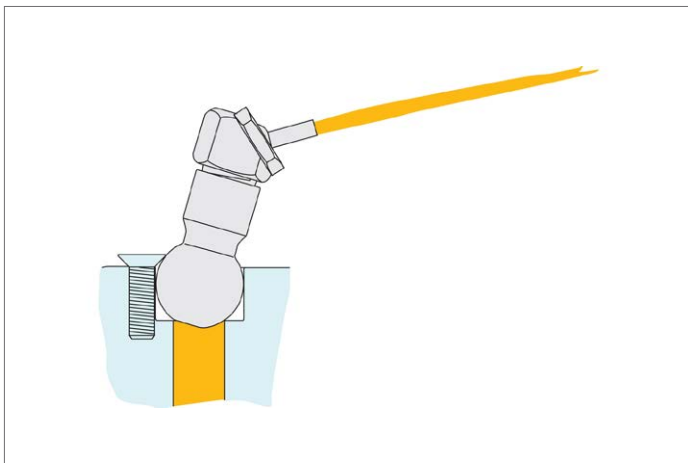
Brass type:

Max. temperature: 150°C.

Tips

Can be fitted to 1/8" NPT/BSPT fittings.

Order No.	Type	d ₁	d ₃	l ₁	Thread d ₂
20036.W6120-A	Acetal	12	6.4	23.1	1/8" NPT/BSPT
20036.W8500-A	Acetal	1/2"	6.4	23.9	1/8" NPT/BSPT
20036.W6120-B	Brass	12	7/32" Hex.	22.9	1/8" NPT/BSPT
20036.W8500-B	Brass	1/2"	7/32" Hex.	23.9	1/8" NPT/BSPT

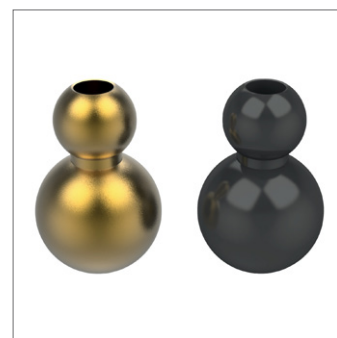
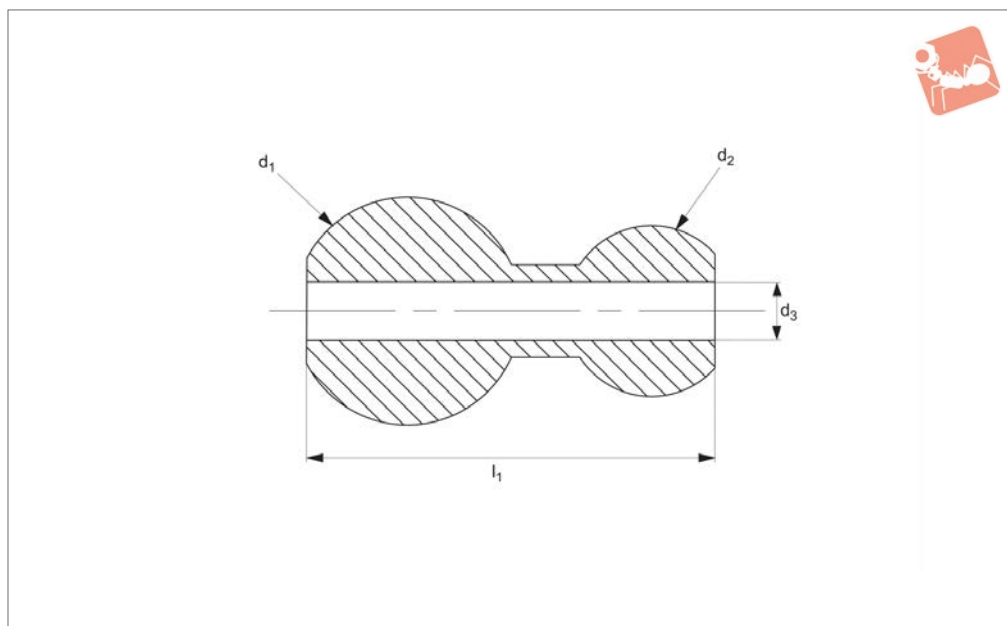




Loc-Line Adapters

max. 10-33 bar

Coolant Nozzles



20037

COOLANT NOZZLES

Material

Acetal or brass.

Technical Notes

Acetal type:

Max. temperature: 70°C.

Max. pressure: 10 bar.

Brass type:

Max. temperature: 150°C.

Max. pressure: 33 bar.

Tips

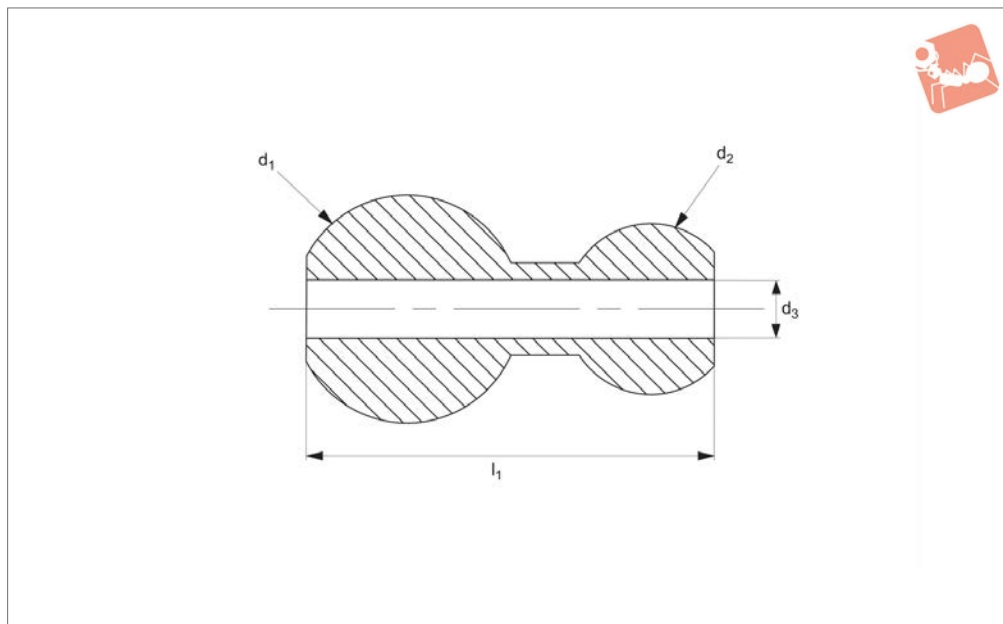
Adapters to allow Loc-Line coolant hose to be used on any machine that employs screw lock balls.

Loc-Line: a trademark of Lockwood Inc.

Order No.	Type	d_1	d_2	d_3	l_1	Pressure Bar max.
20037.W0100-A	Acetal	10	Loc-Line 1/4"	6.3	16.0	10
20037.W0120-A	Acetal	12	Loc-Line 1/4"	6.3	17.0	10
20037.W0140-A	Acetal	14	Loc-Line 1/4"	6.3	19.3	10
20037.W0150-A	Acetal	15	Loc-Line 1/4"	6.3	20.6	10
20037.W0220-A	Acetal	22	Loc-Line 1/4"	6.3	28.5	10
20037.W0250-A	Acetal	1/2"	Loc-Line 1/4"	6.3	18.0	10
20037.W0265-A	Acetal	5/8"	Loc-Line 1/4"	6.3	22.0	10
20037.W0100-B	Brass	10	Loc-Line 1/4"	6.3	16.3	33
20037.W0120-B	Brass	12	Loc-Line 1/4"	6.3	17.0	33
20037.W0140-B	Brass	14	Loc-Line 1/4"	6.3	19.6	33
20037.W0150-B	Brass	15	Loc-Line 1/4"	6.3	20.6	33
20037.W0220-B	Brass	22	Loc-Line 1/4"	6.3	29.2	33
20037.W0250-B	Brass	1/2"	Loc-Line 1/4"	6.3	18.0	33
20037.W0265-B	Brass	5/8"	Loc-Line 1/4"	6.3	22.0	33



20038



Material
Acetal.

Max. pressure: 10 bar.

screw lock balls.

Technical Notes

Max. temperature: 70°C.

Tips

Adapters to allow Snap-Loc coolant hose to be used on any machine that employs

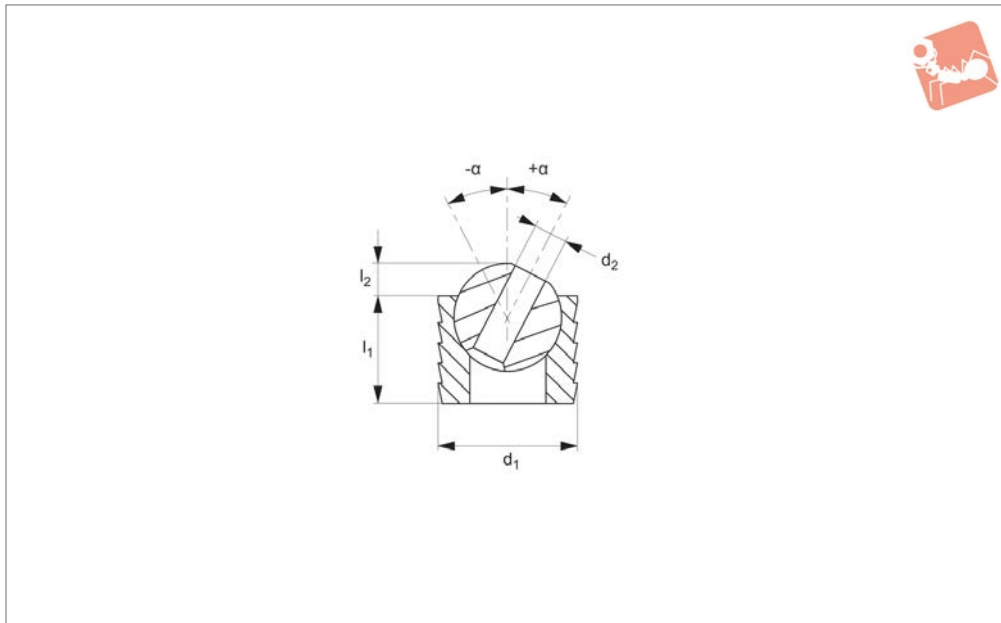
Order No.	d ₁	d ₂	d ₃	l ₁	Pressure Bar max.
20038.W0120	12	Snap-Loc 1/4"	6.3	19.3	10
20038.W0140	14	Snap-Loc 1/4"	6.3	21.3	10
20038.W0150	15	Snap-Loc 1/4"	6.3	22.6	10
20038.W0220	22	Snap-Loc 1/4"	6.3	30.5	10
20038.W0250	1/2"	Snap-Loc 1/4"	6.3	20.1	10
20038.W0263	5/8"	Snap-Loc 1/4"	6.3	24.1	10



Coolant Nozzles - Press In

max. 10 bar

Coolant Nozzles



20042

COOLANT NOZZLES

Material

Body: acetal.
Ball: stainless steel.

Max. pressure 10 bar.
symbola/symbol is an angle of adjustment either side of centre line.

diameter -0, +0,05mm or -0, +0,002"inch) then press in the coolant nozzle until the body is flush.

Technical Notes

Max. temperature 70°C.

Tips

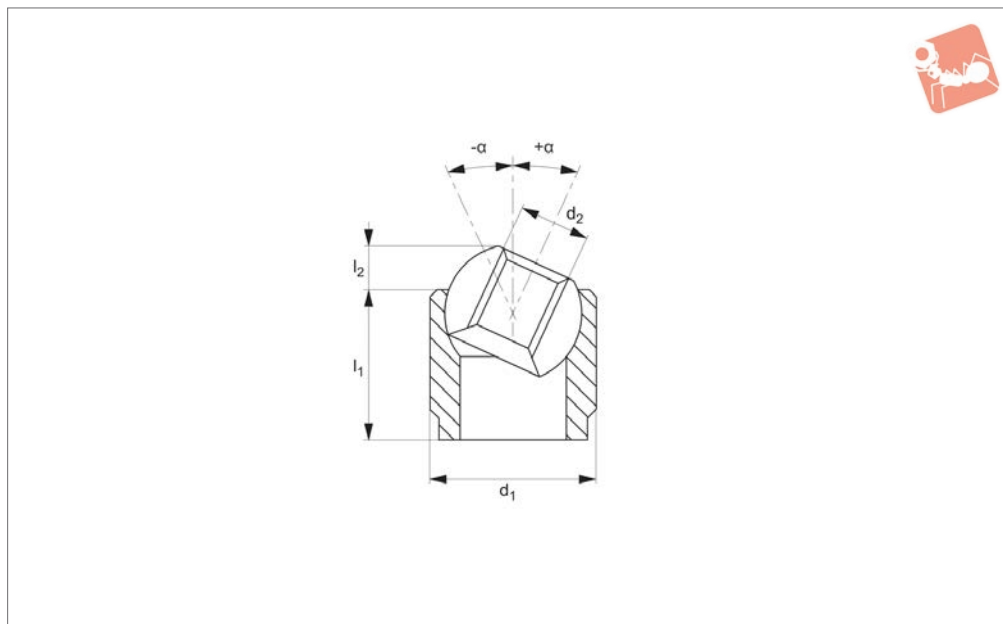
Simply drill and ream hole (to nominal

Ideal for special tooling, CNC lathe tooling etc.

Order No.	For install hole size	d ₁ nom.	d ₂	l ₁	l ₂	α
20042.W0060	6,00 - 6,04	6	1.5	4.8	1.3	±35°
20042.W0061	6,00 - 6,04	6	2.0	4.8	1.3	±35°
20042.W0080	8,00 - 8,05	8	2.8	6.4	1.5	±35°
20042.W0100	10,00 - 10,05	10	4.0	7.9	2.0	±35°
20042.W0120	12,00 - 12,05	12	4.0	9.2	2.5	±35°
20042.W0140	14,00 - 14,05	14	5.6	11.1	3.3	±35°
20042.W0150	15,00 - 15,05	15	5.6	11.1	3.3	±35°
20042.W2120	6,35 - 6,39	1/4"	2.0	4.8	1.3	±35°
20042.W2310	7,94 - 7,99	5/16"	2.8	6.4	1.5	±35°
20042.W2370	9,53 - 9,58	3/8"	4.0	7.9	2.0	±35°
20042.W3440	11,11 - 11,16	7/16"	4.0	9.2	2.5	±35°
20042.W3560	14,29 - 14,34	9/16"	5.6	11.1	3.3	±35°
20042.W2630	15,88 - 15,93	5/8"	5.6	11.1	3.3	±35°



20044



Material

Body: acetal.
Ball: stainless steel.

Technical Notes

Max. temperature: 70°C.
Max. pressure: 10 bar.

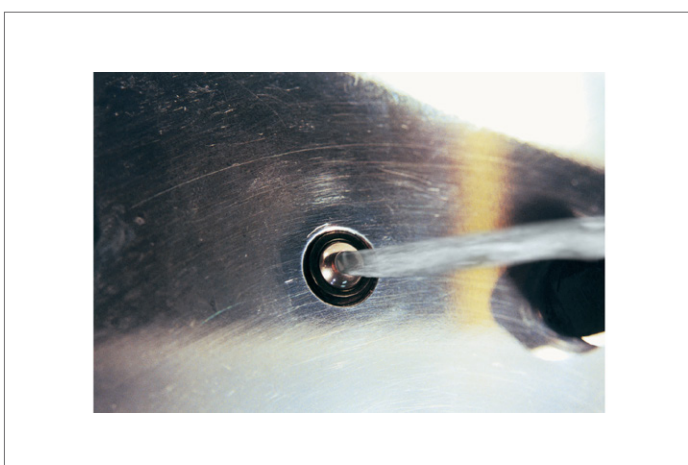
symbol α / symbol is an angle of adjustment either side of centre line.

Tips

Simply drill and ream hole (to H9) then press in the coolant nozzle until the body is flush.

The threaded hole in the top of the nozzle can be used for an extension tube (20020), a spray tip (20080 or 20082) or plugged with a set screw.

Order No.	d_1 tol. h9	d_2	l_1	l_2	α
20044.W6080	8	M 3,5x0,60	6	1.5	$\pm 35^\circ$
20044.W6100	10	M 4,0x0,70	7	2.0	$\pm 35^\circ$
20044.W6120	12	M 5,0x0,80	8	2.5	$\pm 35^\circ$
20044.W6140	14	M 6,0x1,00	10	3.0	$\pm 35^\circ$
20044.W6150	15	M 6,0x1,00	6	3.0	$\pm 35^\circ$
20044.W6160	16	M 8,0x1,25	10	3.0	$\pm 35^\circ$

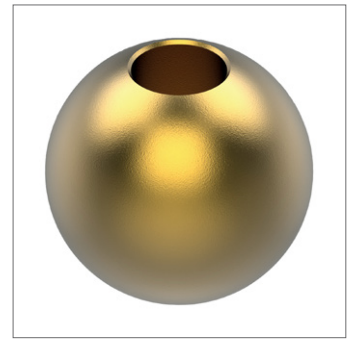
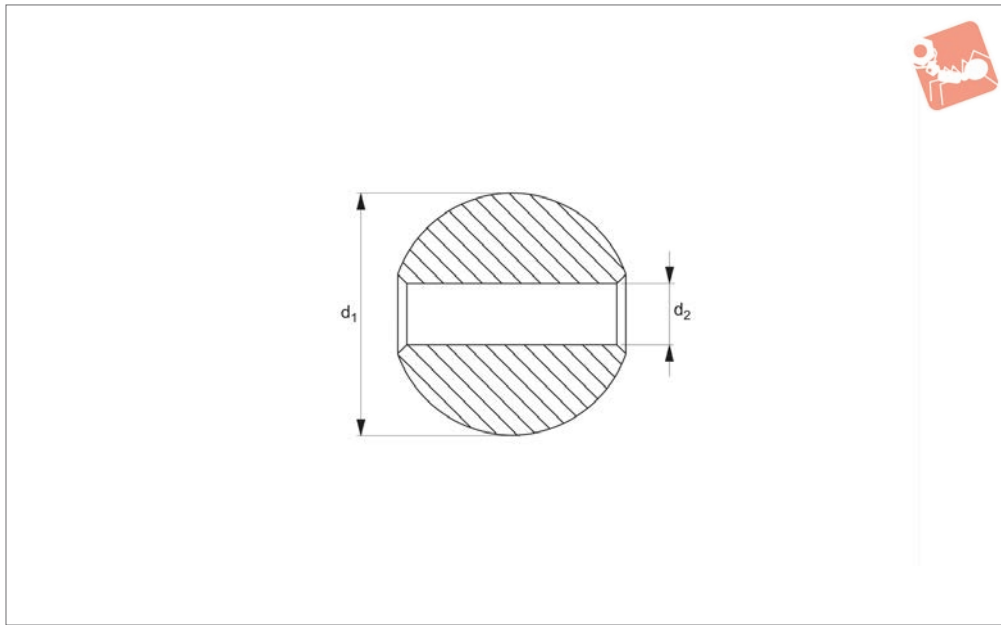




Coolant Nozzles - Brass Ball

max. 33 bar

Coolant Nozzles



20070

COOLANT NOZZLES

Material

Brass.

Max. pressure: 33 bar.

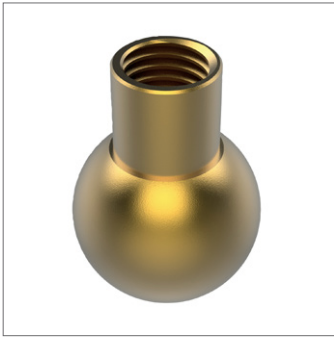
Technical Notes

Max. temperature: 150°C.

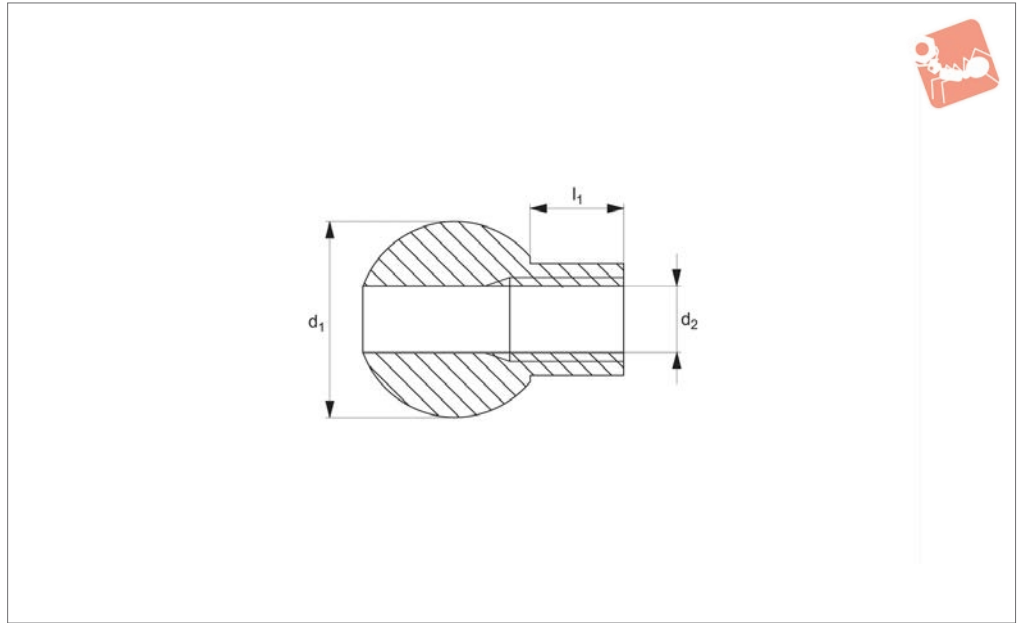
Tips

These are conventional brass ball nozzles.

Order No.	d ₁	d ₂
20070.W0100	10	2.8
20070.W0101	10	4.1
20070.W0110	11	2.8
20070.W0111	11	4.1
20070.W0120	12	4.1
20070.W0121	12	5.6
20070.W0140	14	4.1
20070.W0141	14	5.6
20070.W0150	15	4.1
20070.W0151	15	5.6
20070.W0180	18	4.1
20070.W0181	18	5.6
20070.W0220	22	4.1
20070.W0221	22	5.6
20070.W2500	1/2"	4.1
20070.W2501	1/2"	5.6
20070.W2630	5/8"	4.1
20070.W2631	5/8"	5.6



20072



Material

Brass.

Technical Notes

Max. temperature: 150°C.

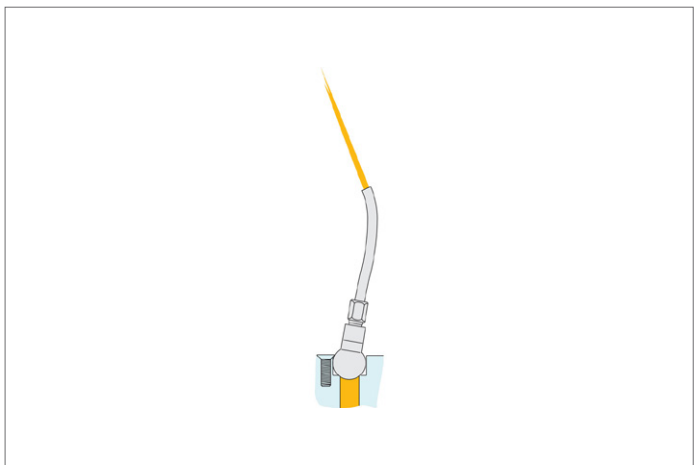
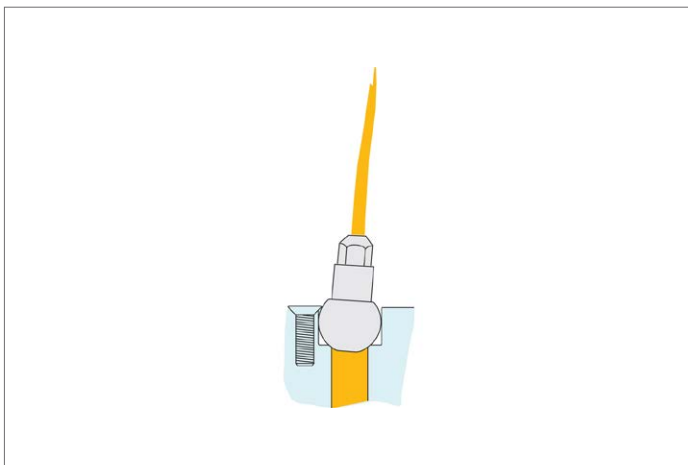
Max. pressure: 33 bar.

Tips

These are conventional threaded brass ball nozzles, and can be used with extension

tubes (20090 and 20092), spray tips (20080 and 20082) or can be plugged with a set screw when required.

Order No.	d ₁	d ₂	l ₁
20072.W5110	11	M 5x0,8	6.0
20072.W5120	12	M 5x0,8	6.0
20072.W6100	10	M 6x1,0	0.0
20072.W6140	14	M 6x1,0	7.9
20072.W6150	15	M 6x1,0	7.9
20072.W6180	18	M 6x1,0	7.9
20072.W6220	22	M 6x1,0	7.9
20072.W8500	1/2"	M 5x0,8	6.0
20072.W8630	5/8"	M 6x1,0	7.9

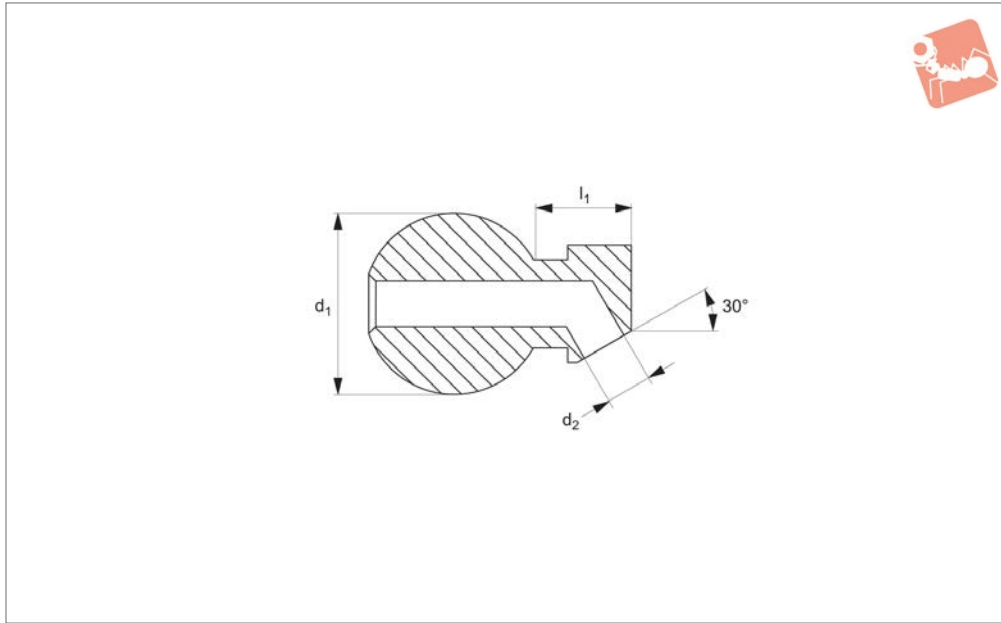




Coolant Nozzles - Brass Ball

angled - max. 33 bar

Coolant Nozzles



20074

COOLANT NOZZLES

Material

Brass.

Max. pressure: 33 bar.

Technical Notes

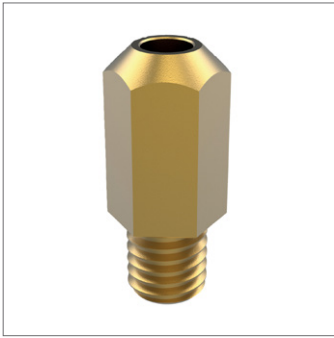
Max. temperature: 150°C.

Tips

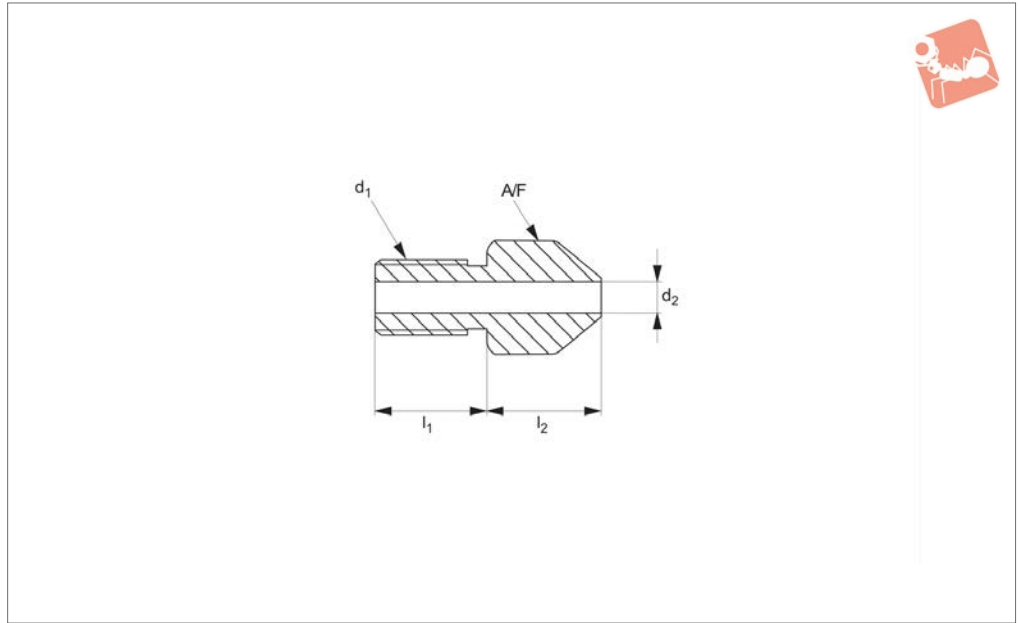
These are conventional brass ball nozzles but with an angled hole.

Order No.	d_1	d_2	l_1
20074.W0100	10	2.8	6.4
20074.W0110	11	4.0	9.2
20074.W0120	12	4.0	9.2
20074.W0140	14	4.0	9.2
20074.W0150	15	4.0	9.2
20074.W0180	18	4.0	9.2
20074.W0220	22	4.0	9.2
20074.W2500	1/2"	4.0	9.2
20074.W2630	5/8"	4.0	9.2





20080



Material

Brass.

Max. pressure: 33 bar.

Tips

Can be used as stand alone units or mounted on many of our coolant nozzles.

Technical Notes

Max. temperature: 150°C.

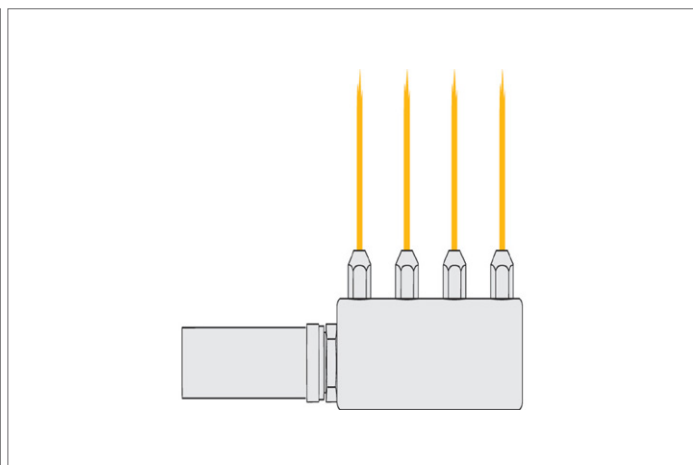
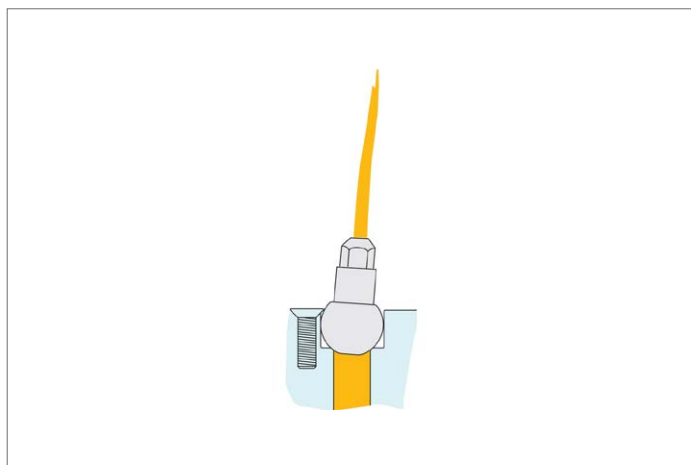
Order No.	d ₁	d ₂	l ₁	l ₂	A/F
20080.W0030	M 3,5x0,60	1.6	3.6	7.1	3/16"
20080.W0031	M 3,5x0,60	2.2	3.6	7.1	3/16"
20080.W0040	M 4x0,70	1.6	4.6	9.1	3/16"
20080.W0041	M 4x0,70	2.2	4.6	9.1	3/16"
20080.W0050	M 5x0,80	1.6	5.3	10.7	1/4"
20080.W0051	M 5x0,80	2.2	5.3	10.7	1/4"
20080.W0052	M 5x0,80	3.0	5.3	10.7	1/4"
20080.W0060	M 6x1,00	1.6	5.3	10.7	1/4"
20080.W0061	M 6x1,00	2.2	5.3	10.7	1/4"
20080.W0062	M 6x1,00	3.0	5.3	10.7	1/4"
20080.W0063	M 6x1,00	3.8	5.3	10.7	1/4"
20080.W0080	M 8x1,25	1.6	7.6	12.7	3/8"
20080.W0081	M 8x1,25	2.2	7.6	12.7	3/8"
20080.W0082	M 8x1,25	3.0	7.6	12.7	3/8"
20080.W0083	M 8x1,25	4.0	7.6	12.7	3/8"
20080.W0084	M 8x1,25	5.6	7.6	12.7	3/8"
20080.W2120	1/8" NPT/BSPT	1.6	9.4	13.5	1/2"
20080.W2121	1/8" NPT/BSPT	2.2	9.4	13.5	1/2"
20080.W2122	1/8" NPT/BSPT	3.0	9.4	13.5	1/2"
20080.W2123	1/8" NPT/BSPT	4.0	9.4	13.5	1/2"
20080.W2124	1/8" NPT/BSPT	5.6	9.4	13.5	1/2"
20080.W2125	1/8" NPT/BSPT	7.1	9.4	13.5	1/2"



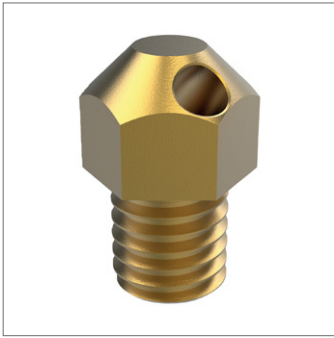
Spray Tips

straight - max. 33 bar

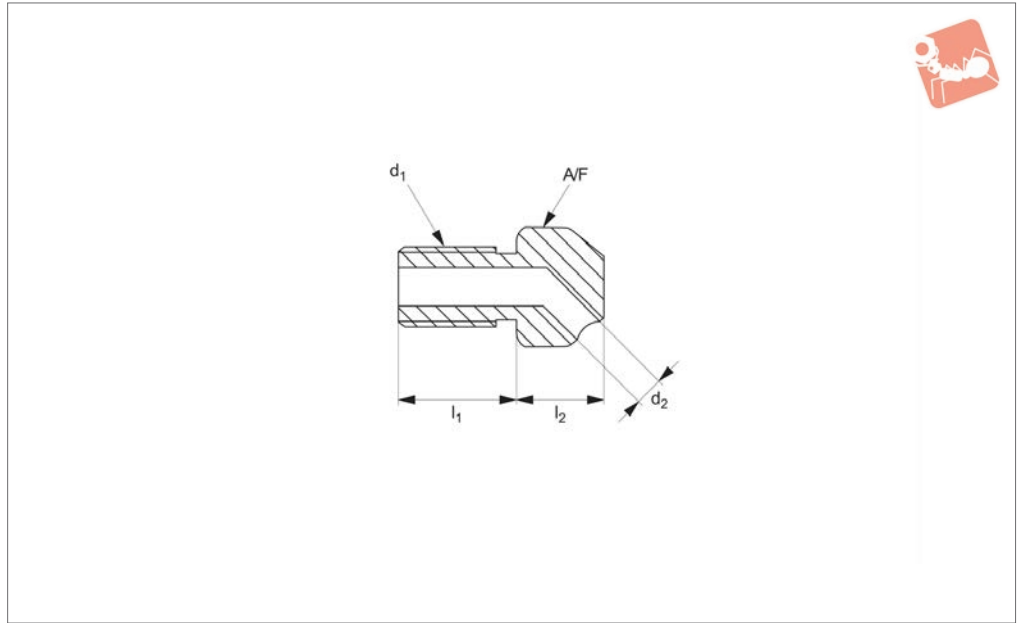
Coolant Nozzles



COOLANT NOZZLES



20082



Material

Brass.

Max. pressure: 33 bar.

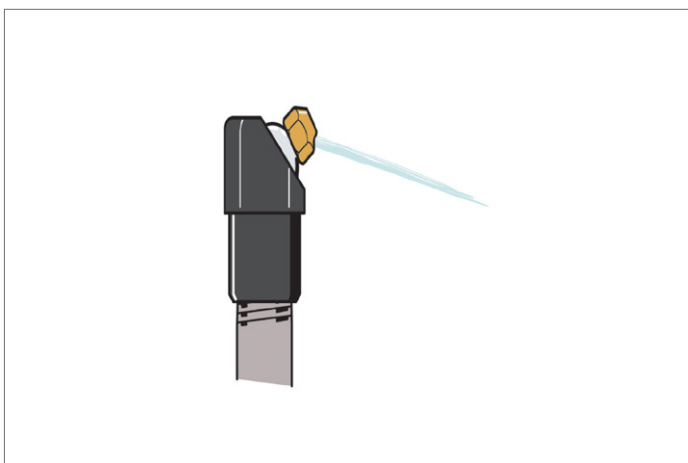
Technical Notes

Max. temperature: 150°C.

Tips

Can be used as stand alone units or mounted on many of our coolant nozzles.

Order No.	d ₁	d ₂	l ₁	l ₂	A/F
20082.W0030	M 3,5x0,6	1.6	3.6	4.6	3/16"
20082.W0040	M 4x0,7	1.6	4.6	4.6	3/16"
20082.W0050	M 5x0,8	2.2	5.3	5.3	1/4"
20082.W0060	M 6x1,0	2.2	5.3	5.3	1/4"
20082.W0061	M 6x1,0	3.0	5.3	5.3	1/4"

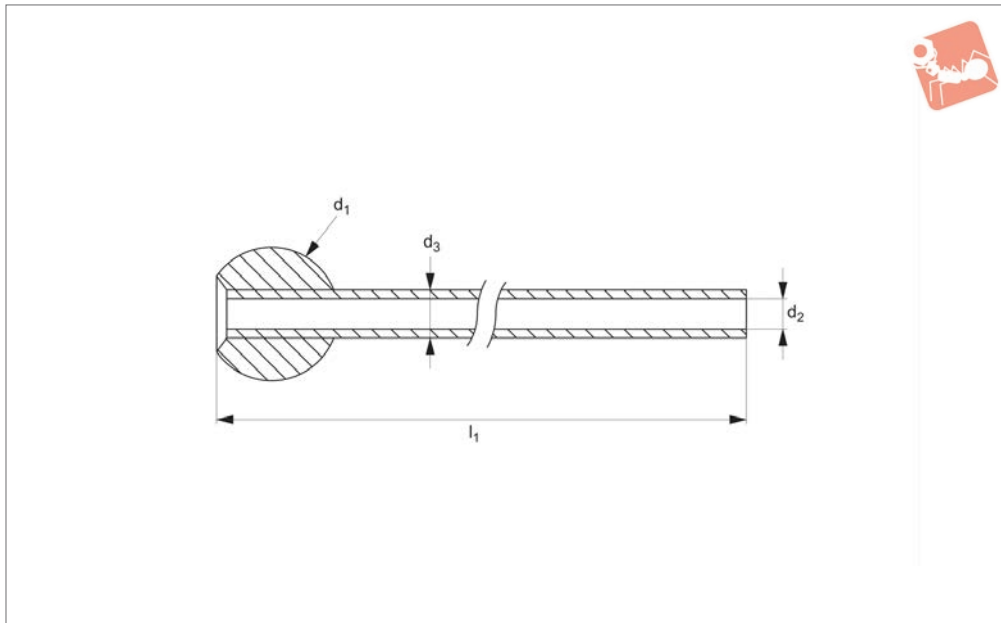




Coolant Nozzles - Single Tube Ball

bendable tube - max. 33 bar

Coolant Nozzles



20084

COOLANT NOZZLES

Material

Ball: brass.
Tube: copper.

Max. pressure: 33 bar.

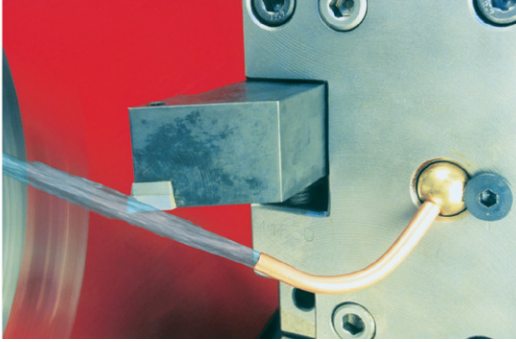
Tips

Bendable extension tubes.

Technical Notes

Max. temperature: 150°C.

Order No.	d ₁	d ₂	d ₃	l ₁
20084.W0090	9	3.0	4.7	152.4
20084.W0100	10	3.0	4.7	152.4
20084.W0110	11	3.0	4.7	152.4
20084.W0120	12	3.0	4.7	152.4
20084.W0121	12	4.6	6.4	152.4
20084.W0140	14	3.0	4.7	152.4
20084.W0141	14	4.6	6.4	152.4
20084.W0150	15	3.0	4.7	152.4
20084.W0151	15	4.6	6.4	152.4
20084.W0180	18	3.0	4.7	152.4
20084.W0181	18	4.6	6.4	152.4
20084.W0220	22	3.0	4.7	152.4
20084.W0221	22	4.6	6.4	152.4
20084.W2370	3/8"	3.0	4.7	152.4
20084.W2500	1/2"	3.0	4.7	152.4
20084.W2501	1/2"	4.6	6.4	152.4
20084.W2630	5/8"	3.0	4.7	152.4
20084.W2631	5/8"	4.6	6.4	152.4



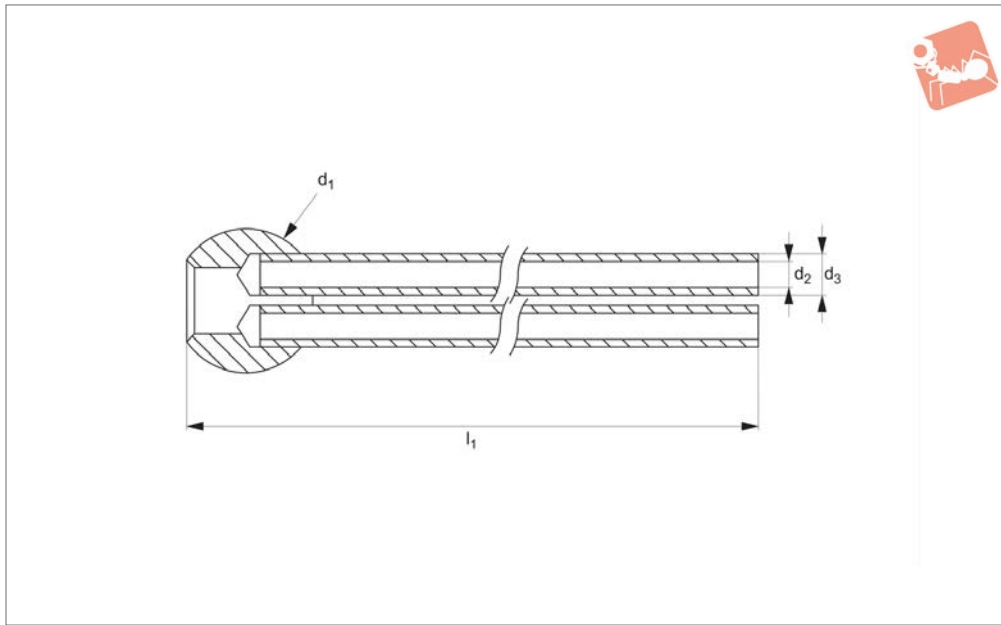


Coolant Nozzles - Double Tube Ball

bendable tube - max. 33 bar



Coolant Nozzles



20085

COOLANT NOZZLES

Material

Ball: brass.
Tube: copper.

Max. pressure: 33 bar.

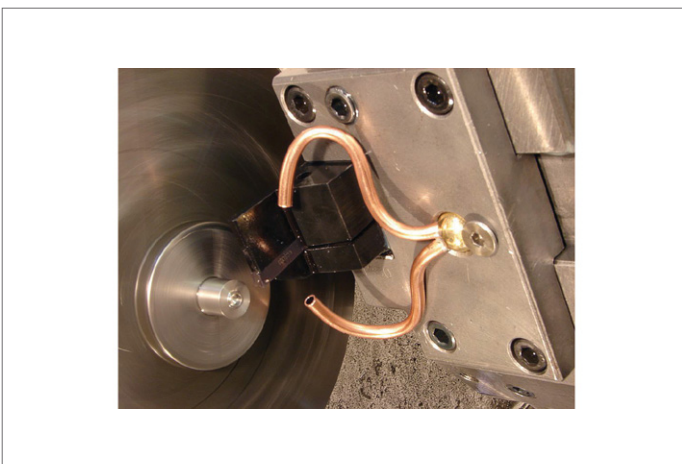
Tips

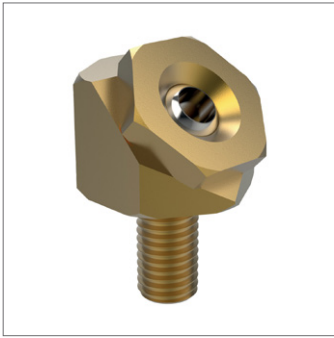
Bendable extension tubes.

Technical Notes

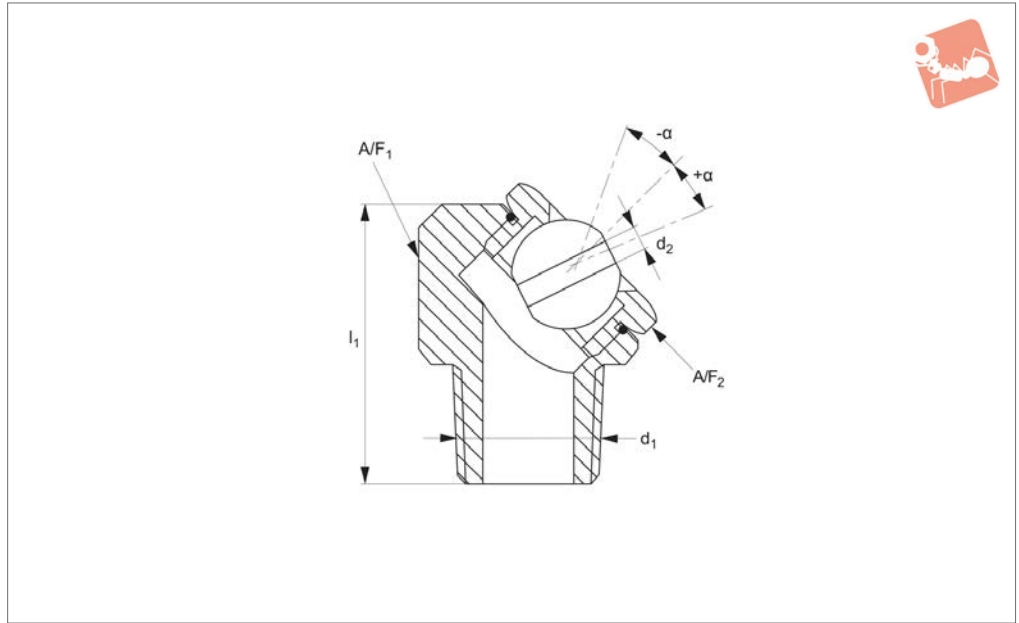
Max. temperature: 150°C.

Order No.	d ₁	d ₂	d ₃	l ₁
20085.W0120	12	3	4.8	152.4
20085.W0140	14	3	4.8	152.4
20085.W0150	15	3	4.8	152.4
20085.W0180	18	3	4.8	152.4
20085.W0220	22	3	4.8	152.4
20085.W2500	1/2"	3	4.8	152.4
20085.W2630	5/8"	3	4.8	152.4





20100



Material

Body: brass or stainless steel.
Ball and tube: stainless steel.

Technical Notes

Max. temperature: 70°C.
Max. pressure: 100 bar.
symbol α /symbol is an angle of adjustment either side of centre line.

Choose the stainless steel body version when using cutting oils not compatible with brass (such as oils containing active sulphur).

Choose the brass versions for lower cost.

Tips

Interchangeable spray tips available allowing the orifice diameter and extension

length to be easily changed to suit the application.

A high velocity coolant stream increases productivity and tool life.

Also useful for low pressure applications where abrasive swarf can be a problem.

Order No.	Thread	Material	A/F ₁	d ₁	d ₂	l ₁	A/F ₂	α
20100.W2061-B	NPT/BSPT	Brass	7/16"	1/16"	2.2	17.5	3/8"	±36°
20100.W2120-B	NPT/BSPT	Brass	9/16"	1/8"	3.0	20.6	1/2"	±41°
20100.W2121-B	NPT/BSPT	Brass	9/16"	1/8"	4.0	20.6	1/2"	±30°
20100.W2250-B	NPT/BSPT	Brass	5/8"	1/4"	3.0	23.8	9/16"	±44°
20100.W2251-B	NPT/BSPT	Brass	5/8"	1/4"	4.0	23.8	9/16"	±36°
20100.W2310-B	UNF	Brass	7/16"	5/16"-24	1.6	17.5	3/8"	±40°
20100.W2311-B	UNF	Brass	7/16"	5/16"-24	2.2	17.5	3/8"	±36°
20100.W2370-B	NPT/BSPT	Brass	3/4"	3/8"	4.0	28.6	11/16"	±42°
20100.W2371-B	NPT/BSPT	Brass	3/4"	3/8"	5.6	28.6	11/16"	±34°
20100.W2060-S	NPT/BSPT	Stainless steel	7/16"	1/16"	1.6	17.5	3/8"	±40°
20100.W2061-S	NPT/BSPT	Stainless steel	7/16"	1/16"	2.2	17.5	3/8"	±36°
20100.W2120-S	NPT/BSPT	Stainless steel	9/16"	1/8"	3.0	20.6	1/2"	±41°
20100.W2121-S	NPT/BSPT	Stainless steel	9/16"	1/8"	4.0	20.6	1/2"	±30°
20100.W2250-S	NPT/BSPT	Stainless steel	5/8"	1/4"	3.0	23.8	9/16"	±44°
20100.W2251-S	NPT/BSPT	Stainless steel	5/8"	1/4"	4.0	23.8	9/16"	±36°
20100.W2310-S	UNF	Stainless steel	7/16"	5/16"-24	1.6	17.5	3/8"	±40°
20100.W2311-S	UNF	Stainless steel	7/16"	5/16"-24	2.2	17.5	3/8"	±36°
20100.W2370-S	NPT/BSPT	Stainless steel	3/4"	3/8"	4.0	28.6	11/16"	±42°
20100.W2371-S	NPT/BSPT	Stainless steel	3/4"	3/8"	5.6	28.6	11/16"	±34°

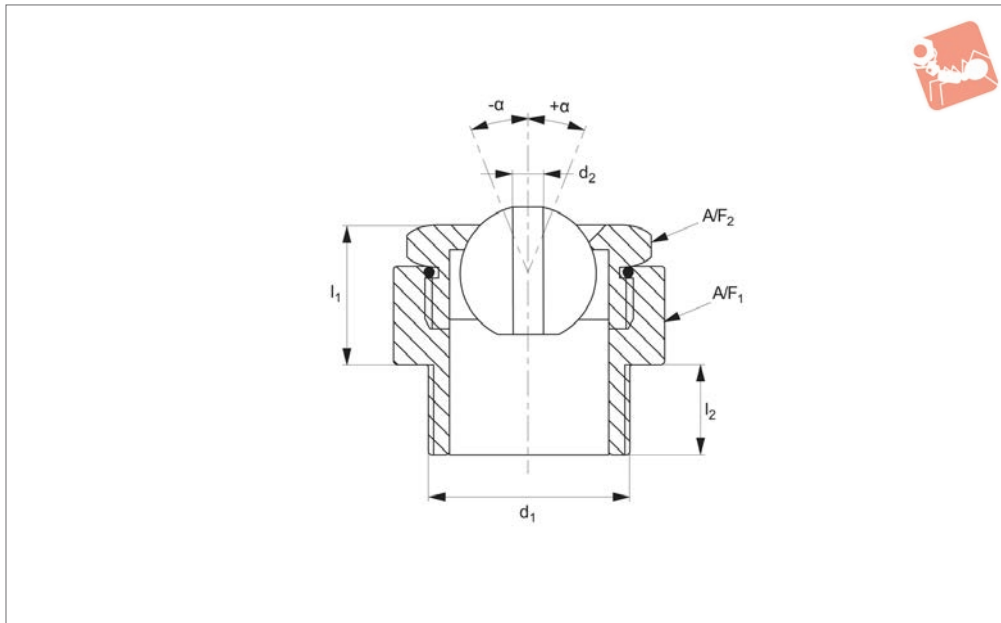


Pressure Max - Coolant Nozzles

straight - max. 100 bar



Coolant Nozzles



20101

COOLANT NOZZLES

Material

Body: stainless steel.
Ball: stainless steel.

Technical Notes

Max. temperature: 70°C.
Max. pressure: 100 bar.
symbol α /symbol is an angle of adjustment

either side of centre line.
Choose the stainless steel body version when using cutting oils not compatible with brass (such as oils containing active sulphur).

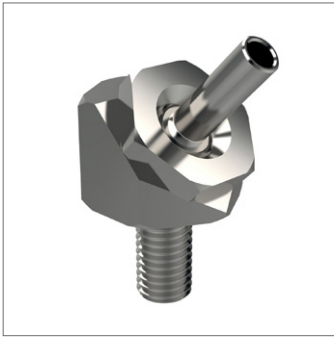
Tips

Interchangeable spray tips available allo-

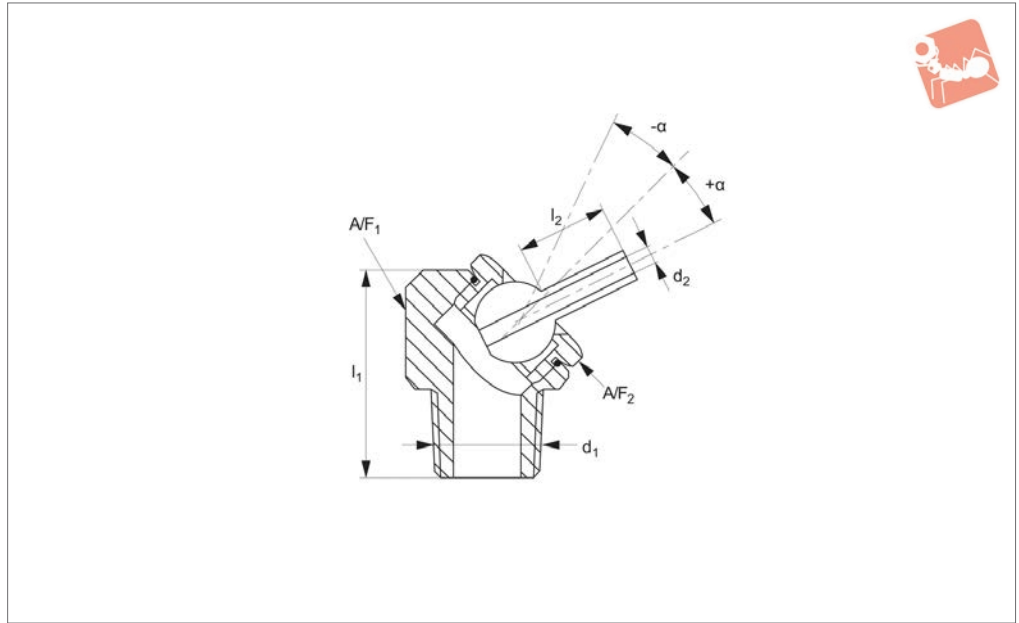
wing the orifice diameter and extension length to be easily changed to suit the application.

A high velocity coolant stream increases productivity and tool life.
Also useful for low pressure applications where abrasive swarf can be a problem.

Order No.	Type	A/F ₁	d ₁	d ₂	l ₁	l ₂	A/F ₂	α
20101.W0100	Metric fine	7/16"	M10x1,25	1.6	9.5	9.1	3/8"	±40°
20101.W0101	Metric fine	7/16"	M10x1,25	2.2	9.5	9.1	3/8"	±36°
20101.W1060	Metric coarse	7/16"	M 6x1,00	1.6	9.5	7.6	3/8"	±40°
20101.W1061	Metric coarse	7/16"	M 6x1,00	2.2	9.5	7.6	3/8"	±36°
20101.W1080	Metric coarse	7/16"	M 8x1,25	1.6	9.5	8.4	3/8"	±40°
20101.W1081	Metric coarse	7/16"	M 8x1,25	2.2	9.5	8.4	3/8"	±36°
20101.W1100	Metric coarse	7/16"	M10x1,50	1.6	9.5	9.1	3/8"	±40°
20101.W1101	Metric coarse	7/16"	M10x1,50	2.2	9.5	9.1	3/8"	±36°



20102



Material

Body: stainless steel or brass.
Ball and tube: stainless steel.

Technical Notes

Max. temperature 70°C.
Max. pressure 100 bar.
symbol α /symbol is an angle of adjustment

either side of centre line.
Stainless steel version for use with cutting oils not compatible with brass.

Tips

Interchangeable spray tips available allowing the orifice diameter and extension

length to be easily changed to suit the application.
A high velocity coolant stream increases productivity and tool life.
Also useful for low pressure applications where abrasive swarf can be a problem.

Order No.	Thread	Body material	A/F ₁	d ₁	d ₂	l ₁	l ₂	A/F ₂	α
20102.W2060-S	NPT/BSPT	Stainless Steel	7/16"	1/16"	1.0	11/16"	6.4	3/8"	±34°
20102.W2061-S	NPT/BSPT	Stainless Steel	7/16"	1/16"	1.6	11/16"	6.4	3/8"	±34°
20102.W2120-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	1.0	20.6	6.4	1/2"	±37°
20102.W2121-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	1.6	20.6	6.4	1/2"	±37°
20102.W2122-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	1.6	20.6	31.7	1/2"	±26°
20102.W2123-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	2.2	20.6	6.4	1/2"	±37°
20102.W2124-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	2.2	20.6	31.7	1/2"	±26°
20102.W2125-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	3.0	20.6	6.4	1/2"	±30°
20102.W2126-S	NPT/BSPT	Stainless Steel	9/16"	1/8"	3.0	20.6	31.7	1/2"	±26°
20102.W2250-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	1.0	23.8	6.4	9/16"	±36°
20102.W2251-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	1.6	23.8	6.4	9/16"	±36°
20102.W2252-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	1.6	23.8	31.7	9/16"	±32°
20102.W2253-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	2.2	23.8	6.4	9/16"	±36°
20102.W2254-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	2.2	23.8	31.7	9/16"	±32°
20102.W2255-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	3.0	23.8	6.4	9/16"	±36°
20102.W2256-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	3.0	23.8	12.7	9/16"	±36°
20102.W2257-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	3.0	23.8	31.7	9/16"	±32°
20102.W2258-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	4.0	23.8	12.7	9/16"	±32°
20102.W2259-S	NPT/BSPT	Stainless Steel	5/8"	1/4"	4.0	23.8	31.7	9/16"	±32°
20102.W2310-S	UNF	Stainless Steel	7/16"	5/16"-24	1.0	11/16"	6.4	3/8"	±34°
20102.W2311-S	UNF	Stainless Steel	7/16"	5/16"-24	1.6	11/16"	6.4	3/8"	±34°
20102.W2370-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	1.6	28.6	9.86	11/16"	±40°
20102.W2371-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	1.6	28.6	31.7	11/16"	±40°
20102.W2372-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	2.2	28.6	9.80	11/16"	±40°
20102.W2373-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	2.2	28.6	31.7	11/16"	±40°
20102.W2374-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	3.0	28.6	12.7	11/16"	±40°
20102.W2375-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	3.0	28.6	31.7	11/16"	±40°
20102.W2376-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	4.0	28.6	12.7	11/16"	±40°
20102.W2377-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	4.0	28.6	31.7	11/16"	±40°
20102.W2379-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	5.0	28.6	12.7	11/16"	±34°



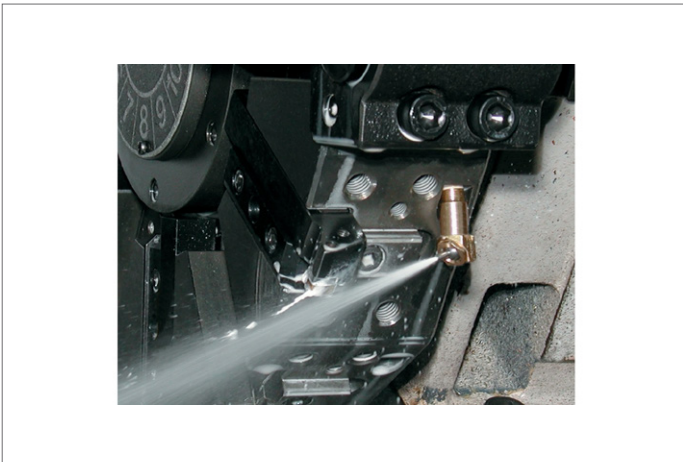
Pressure Max - Coolant Nozzles

angled - with tube - max. 100 bar - stainless or brass

Coolant Nozzles

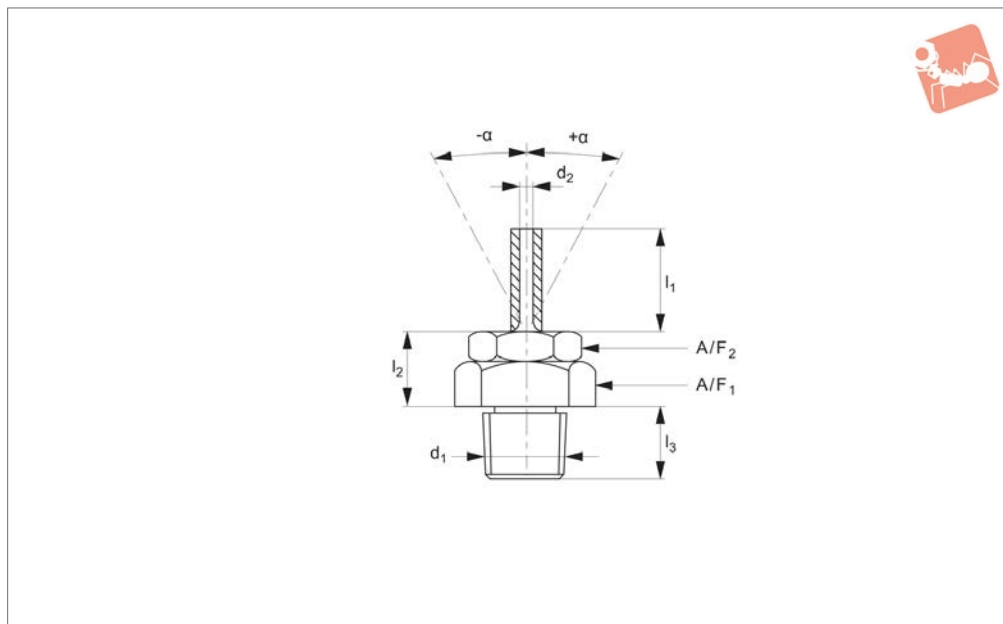
Order No.	Thread	Body material	A/F ₁	d ₁	d ₂	l ₁	l ₂	A/F ₂	α
20102.W2380-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	5.6	28.6	12.7	11/16"	±34°
20102.W2381-S	NPT/BSPT	Stainless Steel	3/4"	3/8"	5.6	28.6	31.7	11/16"	±34°
20102.W2060-B	NPT/BSPT	Brass	7/16"	1/16"	1.0	11/16"	6.4	3/8"	±34°
20102.W2061-B	NPT/BSPT	Brass	7/16"	1/16"	1.6	11/16"	6.4	3/8"	±34°
20102.W2120-B	NPT/BSPT	Brass	9/16"	1/8"	1.0	20.6	6.4	1/2"	±37°
20102.W2121-B	NPT/BSPT	Brass	9/16"	1/8"	1.6	20.6	6.4	1/2"	±37°
20102.W2122-B	NPT/BSPT	Brass	9/16"	1/8"	1.6	20.6	31.7	1/2"	±26°
20102.W2123-B	NPT/BSPT	Brass	9/16"	1/8"	2.2	20.6	6.4	1/2"	±37°
20102.W2124-B	NPT/BSPT	Brass	9/16"	1/8"	2.2	20.6	31.7	1/2"	±26°
20102.W2125-B	NPT/BSPT	Brass	9/16"	1/8"	3.0	20.6	6.4	1/2"	±30°
20102.W2126-B	NPT/BSPT	Brass	9/16"	1/8"	3.0	20.6	31.7	1/2"	±26°
20102.W2250-B	NPT/BSPT	Brass	5/8"	1/4"	1.0	23.8	6.4	9/16"	±36°
20102.W2251-B	NPT/BSPT	Brass	5/8"	1/4"	1.6	23.8	6.4	9/16"	±36°
20102.W2252-B	NPT/BSPT	Brass	5/8"	1/4"	1.6	23.8	31.7	9/16"	±32°
20102.W2253-B	NPT/BSPT	Brass	5/8"	1/4"	2.2	23.8	6.4	9/16"	±36°
20102.W2254-B	NPT/BSPT	Brass	5/8"	1/4"	2.2	23.8	31.7	9/16"	±32°
20102.W2255-B	NPT/BSPT	Brass	5/8"	1/4"	3.0	23.8	6.4	9/16"	±36°
20102.W2256-B	NPT/BSPT	Brass	5/8"	1/4"	3.0	23.8	12.7	9/16"	±36°
20102.W2257-B	NPT/BSPT	Brass	5/8"	1/4"	3.0	23.8	31.7	9/16"	±32°
20102.W2258-B	NPT/BSPT	Brass	5/8"	1/4"	4.0	23.8	12.7	9/16"	±32°
20102.W2259-B	NPT/BSPT	Brass	5/8"	1/4"	4.0	23.8	31.7	9/16"	±32°
20102.W2310-B	UNF	Brass	7/16"	5/16"-24	1.0	11/16"	6.4	3/8"	±34°
20102.W2311-B	UNF	Brass	7/16"	5/16"-24	1.6	11/16"	6.4	3/8"	±34°
20102.W2370-B	NPT/BSPT	Brass	3/4"	3/8"	1.6	28.6	9.8	11/16"	±40°
20102.W2371-B	NPT/BSPT	Brass	3/4"	3/8"	1.6	28.6	31.7	11/16"	±40°
20102.W2372-B	NPT/BSPT	Brass	3/4"	3/8"	2.2	28.6	9.8	11/16"	±40°
20102.W2373-B	NPT/BSPT	Brass	3/4"	3/8"	2.2	28.6	31.7	11/16"	±40°
20102.W2374-B	NPT/BSPT	Brass	3/4"	3/8"	3.0	28.6	12.7	11/16"	±40°
20102.W2375-B	NPT/BSPT	Brass	3/4"	3/8"	3.0	28.6	31.7	11/16"	±40°
20102.W2376-B	NPT/BSPT	Brass	3/4"	3/8"	4.0	28.6	12.7	11/16"	±40°
20102.W2377-B	NPT/BSPT	Brass	3/4"	3/8"	4.0	28.6	31.7	11/16"	±40°
20102.W2378-B	NPT/BSPT	Brass	3/4"	3/8"	5.0	28.6	12.7	11/16"	±34°
20102.W2380-B	NPT/BSPT	Brass	3/4"	3/8"	5.6	28.6	12.7	11/16"	±34°
20102.W2381-B	NPT/BSPT	Brass	3/4"	3/8"	5.6	28.6	31.7	11/16"	±34°

COOLANT NOZZLES





20103



Material

Stainless steel body, ball and tube.

Technical Notes

Max. temperature: 70°C.

Max. pressure: 100 bar.

symbol α is an angle of adjustment

either side of centre line.

Tips

Interchangeable spray tips available allowing the orifice diameter and extension length to be easily changed to suit the application.

A high velocity coolant stream increases productivity and tool life.

Also useful for low pressure applications where abrasive swarf can be a problem.

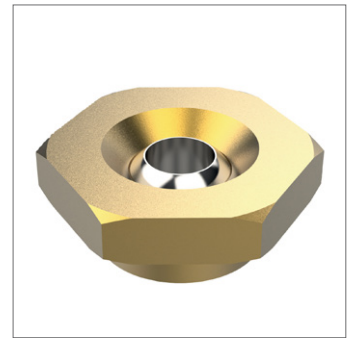
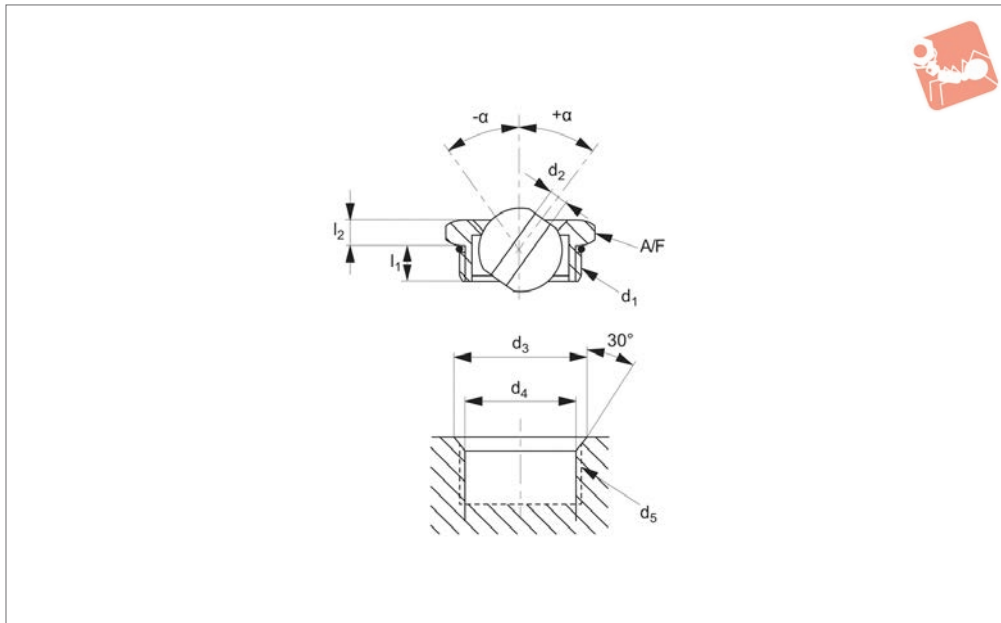
Order No.	Type	A/F ₁	d ₁	d ₂	l ₁	l ₂	l ₃	A/F ₂	α
20103.W0100	Metric Fine	7/16"	M10x1,25	1.0	6.4	9.5	9.2	3/8"	±34°
20103.W0101	Metric Fine	7/16"	M10x1,25	1.6	6.4	9.5	9.1	3/8"	±34°
20103.W1060	Metric Coarse	7/16"	M 6x1,00	1.0	6.4	9.5	7.6	3/8"	±34°
20103.W1061	Metric Coarse	7/16"	M 6x1,00	1.6	6.4	9.5	7.6	3/8"	±34°
20103.W1080	Metric Coarse	7/16"	M 8x1,25	1.0	6.4	9.5	8.4	3/8"	±34°
20103.W1081	Metric Coarse	7/16"	M 8x1,25	1.6	6.4	9.5	8.6	3/8"	±34°
20103.W1100	Metric Coarse	7/16"	M10x1,50	1.0	6.4	9.5	9.1	3/8"	±34°
20103.W1101	Metric Coarse	7/16"	M10x1,50	1.6	6.4	9.5	9.1	3/8"	±34°



Pressure Max - Spray Tips

max. 100 bar

Coolant Nozzles



20104

COOLANT NOZZLES

Material

Body: brass or stainless steel.
Ball and tube: stainless steel.

Technical Notes

Max. temperature: 70°C.
Max. pressure: 100 bar.
symbol α /symbol is an angle of adjustment either side of centre line.
Choose the stainless steel body version

when using cutting oils not compatible with brass (such as oils containing active sulphur).
Choose the brass versions for lower cost.

Tips

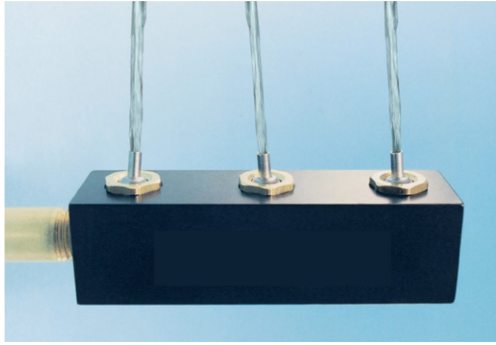
Interchangeable spray tips available allowing the orifice diameter and extension

length to be easily changed to suit the application.
A high velocity coolant stream increases productivity and tool life.
Also useful for low pressure applications where abrasive swarf can be a problem.

Order No.	Body material	d ₁	d ₂	d ₃ max.	d ₄ max.	d ₅	l ₁	l ₂	A/F	α
20104.W2310-B	Brass	5/16"-24 UNF	1.6	8.8	7.1	5/16"-24	3.5	2.3	3/8"	±40°
20104.W2311-B	Brass	5/16"-24 UNF	2.2	8.8	7.1	5/16"-24	3.5	2.3	3/8"	±36°
20104.W2440-B	Brass	7/16"-20 UNF	3.0	12.0	10.0	7/16"-20	4.0	2.3	1/2"	±41°
20104.W2441-B	Brass	7/16"-20 UNF	4.0	12.0	10.1	7/16"-20	4.0	2.3	1/2"	±30°
20104.W2500-B	Brass	1/2"-20 UNF	3.0	13.6	11.6	1/2"-20	4.0	2.3	9/16"	±44°
20104.W2501-B	Brass	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	9/16"	±36°
20104.W2630-B	Brass	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	11/16"	±42°
20104.W2631-B	Brass	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	11/16"	±34°
20104.W2310-S	Stainless Steel	5/16"-24 UNF	1.6	8.8	7.1	5/16"-24	3.5	2.3	3/8"	±40°
20104.W2311-S	Stainless Steel	5/16"-24 UNF	2.2	8.8	7.1	5/16"-24	3.5	2.3	3/8"	±36°
20104.W2440-S	Stainless Steel	7/16"-20 UNF	3.0	12.0	10.1	7/16"-20	4.0	2.3	1/2"	±41°
20104.W2441-S	Stainless Steel	7/16"-20 UNF	4.0	12.0	10.1	7/16"-20	4.0	2.3	1/2"	±30°
20104.W2500-S	Stainless Steel	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	9/16"	±44°
20104.W2501-S	Stainless Steel	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	9/16"	±36°
20104.W2630-S	Stainless Steel	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	11/16"	±42°
20104.W2631-S	Stainless Steel	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	11/16"	±34°



COOLANT NOZZLES

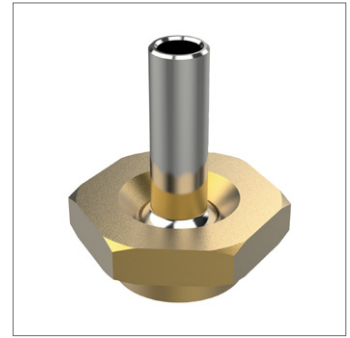




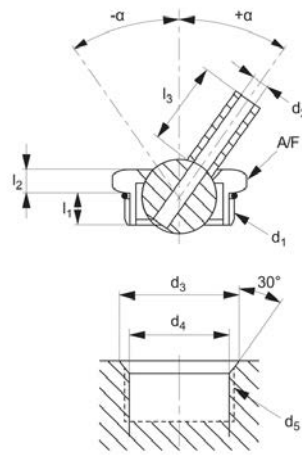
Pressure Max - Spray Tips - Brass

with tube - max. 100 bar

Coolant Nozzles



20106



COOLANT NOZZLES

Material

Body: stainless or brass.
Ball and tube: stainless steel.

Technical Notes

Max. temperature: 70°C.
Max. pressure: 100 bar.
symbol α /symbol is an angle of adjustment

either side of centre line.
Lower cost brass version.
Stainless steel version available when using cutting oils not compatible with brass.

Tips

Interchangeable spray tips available allo-

wing the orifice diameter and extension length to be easily changed to suit the application.

A high velocity coolant stream increases productivity and tool life.
Also useful for low pressure applications where abrasive swarf can be a problem.

Order No.	Body material	d ₁	d ₂	d ₃ max.	d ₄ max.	d ₅	l ₁	l ₂	l ₃	A/F	α
20106.W2310-B	Brass	5/16"-24 UNF	1.0	8.8	7.1	5/16"-24	3.5	2.3	6.4	3/8"	±34°
20106.W2311-B	Brass	5/16"-24 UNF	1.6	8.8	7.1	5/16"-24	3.5	2.3	6.4	3/8"	±34°
20106.W2440-B	Brass	7/16"-20 UNF	1.0	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2441-B	Brass	7/16"-20 UNF	1.6	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2442-B	Brass	7/16"-20 UNF	1.6	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2443-B	Brass	7/16"-20 UNF	2.2	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2444-B	Brass	7/16"-20 UNF	2.2	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2445-B	Brass	7/16"-20 UNF	3.0	12.0	10.0	7/16"-20	4.0	2.3	6.4	1/2"	±30°
20106.W2446-B	Brass	7/16"-20 UNF	3.0	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2500-B	Brass	1/2"-20 UNF	1.0	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2501-B	Brass	1/2"-20 UNF	1.6	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2502-B	Brass	1/2"-20 UNF	1.6	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2503-B	Brass	1/2"-20 UNF	2.2	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2504-B	Brass	1/2"-20 UNF	2.2	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2505-B	Brass	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2506-B	Brass	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	12.7	9/16"	±36°
20106.W2507-B	Brass	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2508-B	Brass	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	12.7	9/16"	±32°
20106.W2509-B	Brass	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2630-B	Brass	5/8"-18 UNF	1.6	16.8	14.7	5/8"-18	5.3	2.3	9.7	11/16"	±40°
20106.W2631-B	Brass	5/8"-18 UNF	1.6	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2632-B	Brass	5/8"-18 UNF	2.2	16.8	14.7	5/8"-18	5.3	2.3	9.7	11/16"	±40°
20106.W2633-B	Brass	5/8"-18 UNF	2.2	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±42°
20106.W2634-B	Brass	5/8"-18 UNF	3.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±40°
20106.W2635-B	Brass	5/8"-18 UNF	3.0	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2636-B	Brass	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±40°
20106.W2637-B	Brass	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2638-B	Brass	5/8"-18 UNF	5.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±34°
20106.W2639-B	Brass	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±34°
20106.W2640-B	Brass	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±34°



COOLANT NOZZLES

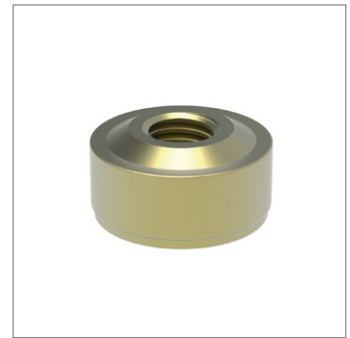
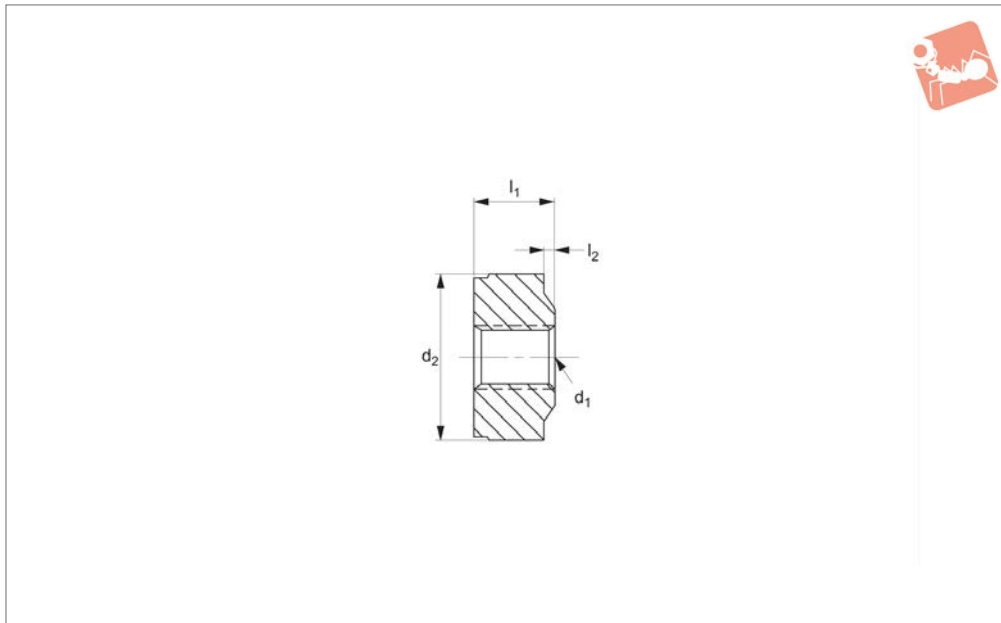
Order No.	Body material	d ₁	d ₂	d ₃ max.	d ₄ max.	d ₅	l ₁	l ₂	l ₃	A/F	α
20106.W2310-S	Stainless	5/16"-24 UNF	1.0	8.8	7.1	5/16"-24	3.5	2.3	6.4	3/8"	±34°
20106.W2311-S	Stainless	5/16"-24 UNF	1.6	8.8	7.1	5/16"-24	3.5	2.3	6.4	3/8"	±34°
20106.W2440-S	Stainless	7/16"-20 UNF	1.0	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2441-S	Stainless	7/16"-20 UNF	1.6	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2442-S	Stainless	7/16"-20 UNF	1.6	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2443-S	Stainless	7/16"-20 UNF	2.2	12.0	10.0	7/16"-20	4.0	2.3	6.4	1/2"	±37°
20106.W2444-S	Stainless	7/16"-20 UNF	2.2	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2445-S	Stainless	7/16"-20 UNF	3.0	12.0	10.1	7/16"-20	4.0	2.3	6.4	1/2"	±34°
20106.W2446-S	Stainless	7/16"-20 UNF	3.0	12.0	10.1	7/16"-20	4.0	2.3	31.7	1/2"	±26°
20106.W2500-S	Stainless	1/2"-20 UNF	1.0	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2501-S	Stainless	1/2"-20 UNF	1.6	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2502-S	Stainless	1/2"-20 UNF	1.6	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2503-S	Stainless	1/2"-20 UNF	2.2	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2504-S	Stainless	1/2"-20 UNF	2.2	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2505-S	Stainless	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	6.4	9/16"	±36°
20106.W2506-S	Stainless	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	12.7	9/16"	±36°
20106.W2507-S	Stainless	1/2"-20 UNF	3.0	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2508-S	Stainless	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	12.7	9/16"	±32°
20106.W2509-S	Stainless	1/2"-20 UNF	4.0	13.6	11.7	1/2"-20	4.0	2.3	31.7	9/16"	±32°
20106.W2630-S	Stainless	5/8"-18 UNF	1.6	16.7	14.7	5/8"-18	5.3	2.3	9.8	11/16"	±40°
20106.W2631-S	Stainless	5/8"-18 UNF	1.6	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2632-S	Stainless	5/8"-18 UNF	2.2	16.8	14.7	5/8"-18	5.3	2.3	9.70	11/16"	±40°
20106.W2633-S	Stainless	5/8"-18 UNF	2.2	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2634-S	Stainless	5/8"-18 UNF	3.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±40°
20106.W2635-S	Stainless	5/8"-18 UNF	3.0	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2636-S	Stainless	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±40°
20106.W2637-S	Stainless	5/8"-18 UNF	4.0	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±40°
20106.W2638-S	Stainless	5/8"-18 UNF	5.0	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±34°
20106.W2639-S	Stainless	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	12.7	11/16"	±34°
20106.W2640-S	Stainless	5/8"-18 UNF	5.6	16.8	14.7	5/8"-18	5.3	2.3	31.7	11/16"	±34°



Port Adaptors - Press Fit

high pressure - max. 100 bar

Coolant Nozzles



20107

COOLANT NOZZLES

Material

Brass.

Max. pressure: 100 bar.

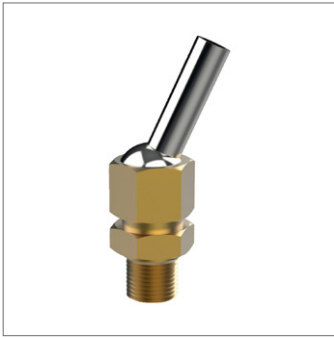
Converts low pressure screwball type parts to high pressure fixed, threaded parts.

Technical Notes

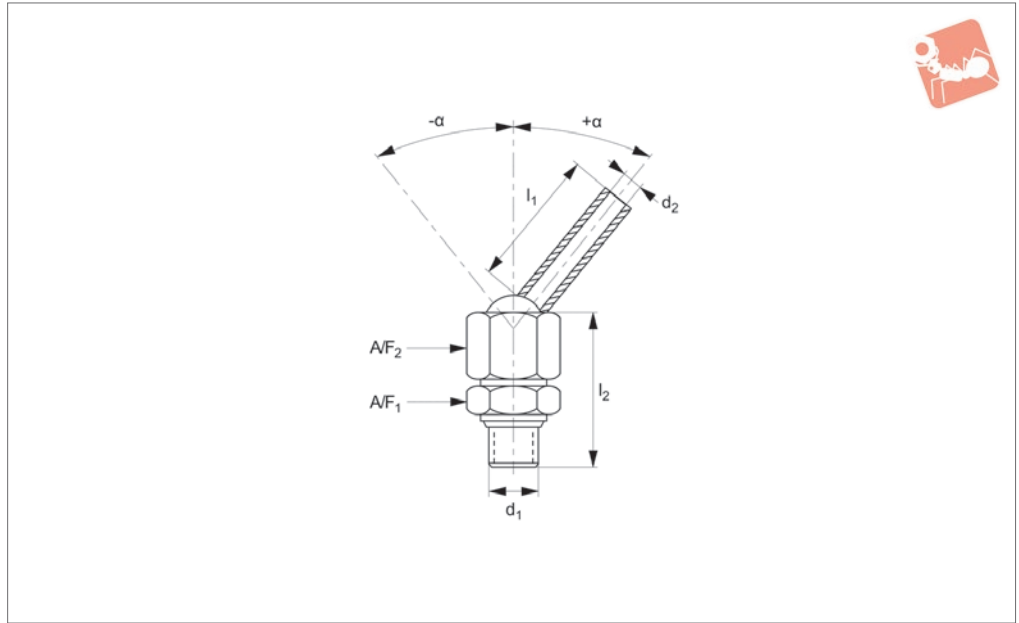
Max. temperature: 150°C.

Hole tolerance for d_2 H9.

Order No.	d_1	d_2	l_1	l_2
20107.W6080	M 6x1,0	8	6.0	-
20107.W6100	M 6x1,0	10	6.0	-
20107.W6121	M 6x1,0	12	6.0	-
20107.W6141	M 6x1,0	14	7.1	1
20107.W6151	M 6x1,0	15	7.1	1
20107.W6161	M 6x1,0	16	7.1	1
20107.W6120	1/8" NPT/BSPT	12	6.0	-
20107.W6140	1/8" NPT/BSPT	14	6.0	-
20107.W6150	1/8" NPT/BSPT	15	6.0	-
20107.W6160	1/8" NPT/BSPT	16	6.0	-



20108



Material

Body and nut: brass.
 Ball and extension: stainless steel.
 152,4mm long tubes brass/copper.

Technical Notes

Max. temperature: 150°C.

Max. pressure: 100 bar.
 symbola/symbol is an angle of adjustment
 either side of centre line.
 These units fit both NPT and BSPT ports.
 Through tightening of nut A/F₂ these
 nozzles can be locked in position. Ideal for

applications where the nozzles could be
 knocked out of position.

Tips

The balls and tube are easily interchangeable - see part no. 20109 for replacement balls and tubes.

Order No.	A/F ₁	d ₁	d ₂	l ₁	l ₂	A/F ₂	α
20108.W2120	1/2"	1/8"-NPT/BSPT	1.6	6.4	28.4	9/16"	±33°
20108.W2121	1/2"	1/8"-NPT/BSPT	1.6	31.7	28.4	9/16"	±28°
20108.W2122	1/2"	1/8"-NPT/BSPT	2.2	6.4	28.4	9/16"	±33°
20108.W2123	1/2"	1/8"-NPT/BSPT	2.2	31.7	28.4	9/16"	±28°
20108.W2124	1/2"	1/8"-NPT/BSPT	3.0	12.7	28.4	9/16"	±33°
20108.W2125	1/2"	1/8"-NPT/BSPT	3.0	31.7	28.4	9/16"	±28°
20108.W2126	1/2"	1/8"-NPT/BSPT	3.2	152.4	28.4	9/16"	±28°
20108.W2127	1/2"	1/8"-NPT/BSPT	4.0	12.7	28.4	9/16"	±28°
20108.W2128	1/2"	1/8"-NPT/BSPT	4.0	31.7	28.4	9/16"	±28°
20108.W2250	9/16"	1/4"-NPT/BSPT	1.6	9.7	31.2	5/8"	±33°
20108.W2251	9/16"	1/4"-NPT/BSPT	1.6	31.7	31.2	5/8"	±33°
20108.W2252	9/16"	1/4"-NPT/BSPT	2.2	9.7	31.2	5/8"	±33°
20108.W2253	9/16"	1/4"-NPT/BSPT	2.2	31.7	31.2	5/8"	±33°
20108.W2254	9/16"	1/4"-NPT/BSPT	3.0	12.7	31.2	5/8"	±33°
20108.W2255	9/16"	1/4"-NPT/BSPT	3.0	31.7	31.2	5/8"	±33°
20108.W2256	9/16"	1/4"-NPT/BSPT	3.2	152.4	31.2	5/8"	±33°
20108.W2257	9/16"	1/4"-NPT/BSPT	4.0	12.7	31.2	5/8"	±33°
20108.W2258	9/16"	1/4"-NPT/BSPT	4.0	31.7	31.2	5/8"	±33°
20108.W2259	9/16"	1/4"-NPT/BSPT	5.6	12.7	31.2	5/8"	±27°
20108.W2260	9/16"	1/4"-NPT/BSPT	5.6	31.7	31.2	5/8"	±27°
20108.W2370	13/16"	3/8"-NPT/BSPT	3.2	152.4	35.8	3/4"	±38°
20108.W2371	13/16"	3/8"-NPT/BSPT	4.0	19.0	35.8	3/4"	±33°
20108.W2372	13/16"	3/8"-NPT/BSPT	4.0	38.1	35.8	3/4"	±33°
20108.W2373	13/16"	3/8"-NPT/BSPT	4.8	152.4	35.8	3/4"	±33°
20108.W2374	13/16"	3/8"-NPT/BSPT	5.6	19.0	35.8	3/4"	±27°
20108.W2375	13/16"	3/8"-NPT/BSPT	5.6	38.1	35.8	3/4"	±27°
20108.W2376	13/16"	3/8"-NPT/BSPT	7.1	19.0	35.8	3/4"	±23°
20108.W2377	13/16"	3/8"-NPT/BSPT	7.1	38.1	35.8	3/4"	±23°

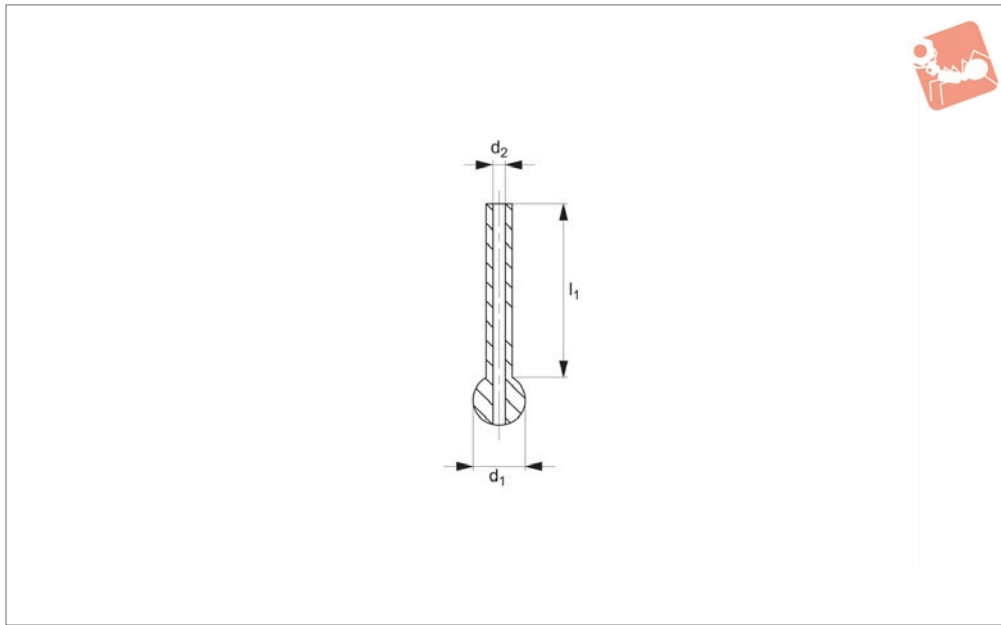


Coolant Nozzles - Lock Jet

single tube ball - max.100 bar - for part 20108



Coolant Nozzles



20109

COOLANT NOZZLES

Material

Ball: stainless steel.
Tube: copper.

Max. pressure: 100 bar.

To be used with part no. 20108 as replacement units, or to provide a wider range of use with a single lock jet unit.

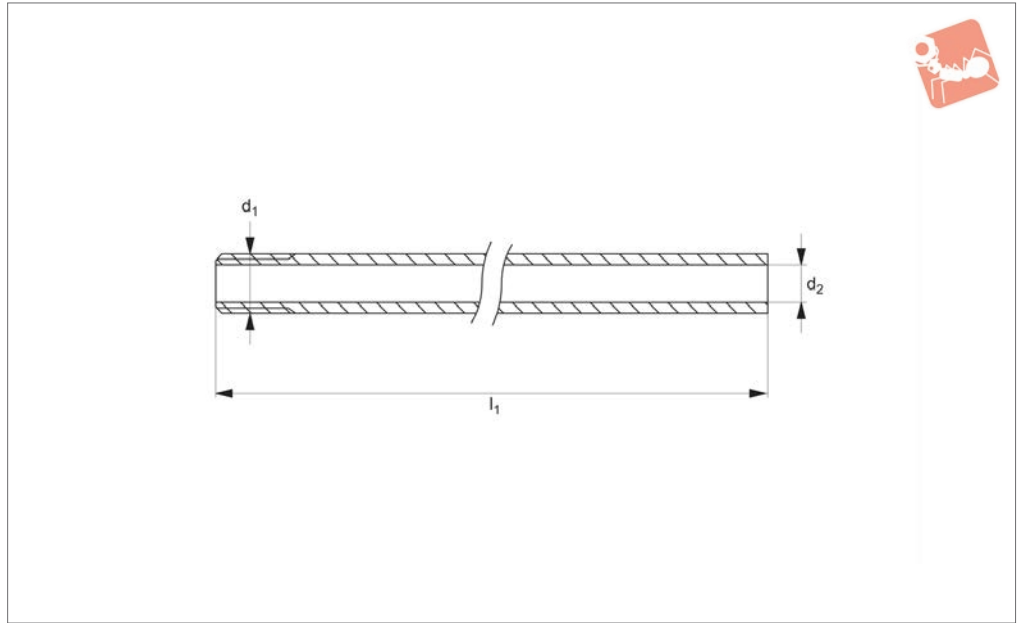
Technical Notes

Max. temperature: 150°C.

Order No.	To suit lock jet of thread	d ₁	d ₂	l ₁
20109.W2370	1/8" - NPT/BSPT	9.5	1.6	6.4
20109.W2371	1/8" - NPT/BSPT	9.5	1.6	31.7
20109.W2372	1/8" - NPT/BSPT	9.5	2.2	6.4
20109.W2373	1/8" - NPT/BSPT	9.5	2.2	31.7
20109.W2374	1/8" - NPT/BSPT	9.5	3.0	12.7
20109.W2375	1/8" - NPT/BSPT	9.5	3.0	31.7
20109.W2376	1/8" - NPT/BSPT	9.5	4.0	12.7
20109.W2377	1/8" - NPT/BSPT	9.5	4.0	31.7
20109.W0120	1/4" - NPT/BSPT	12.0	1.6	9.7
20109.W0121	1/4" - NPT/BSPT	12.0	1.6	31.7
20109.W0122	1/4" - NPT/BSPT	12.0	2.2	9.7
20109.W0123	1/4" - NPT/BSPT	12.0	2.2	31.7
20109.W0124	1/4" - NPT/BSPT	12.0	3.0	12.7
20109.W0125	1/4" - NPT/BSPT	12.0	3.0	31.7
20109.W0126	1/4" - NPT/BSPT	12.0	4.0	12.7
20109.W0127	1/4" - NPT/BSPT	12.0	4.0	31.7
20109.W0128	1/4" - NPT/BSPT	12.0	5.6	12.7
20109.W0129	1/4" - NPT/BSPT	12.0	5.6	31.7
20109.W0150	3/8" - NPT/BSPT	15.0	4.0	19.0
20109.W0151	3/8" - NPT/BSPT	15.0	4.0	38.1
20109.W0152	3/8" - NPT/BSPT	15.0	5.6	19.0
20109.W0153	3/8" - NPT/BSPT	15.0	5.6	38.1
20109.W0154	3/8" - NPT/BSPT	15.0	7.1	19.0
20109.W0155	3/8" - NPT/BSPT	15.0	7.1	38.1



20090



Material

Brass.

Max. pressure: 33 bar.

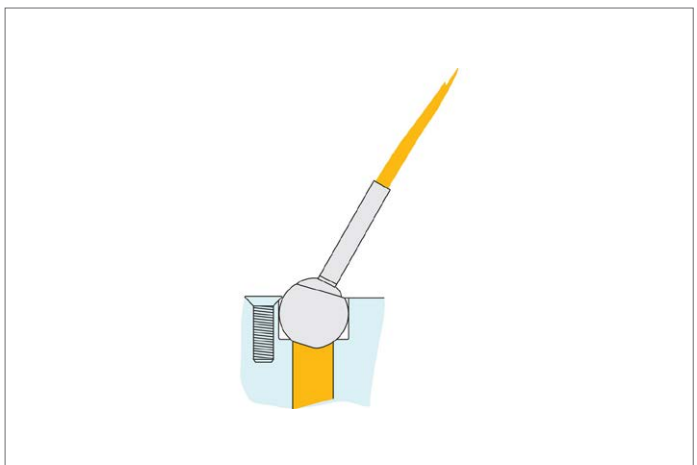
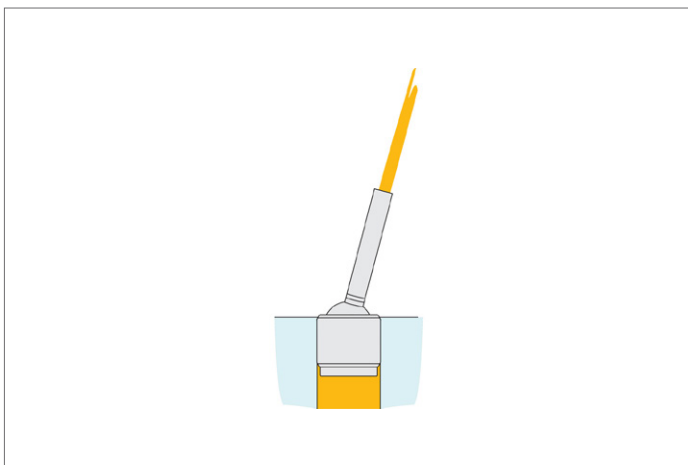
Tips

For use with many of our coolant nozzles, or as stand alone units.

Technical Notes

Max. temperature: 150°C.

Order No.	d_1	d_2	l_1
20090.W0030	M 3,5x0,60	2.0	30
20090.W0040	M 4x0,70	2.0	30
20090.W0050	M 5x0,80	3.0	40
20090.W0060	M 6x1,00	4.0	50
20090.W0070	M 7x1,00	5.0	55
20090.W0080	M 8x1,25	5.5	55

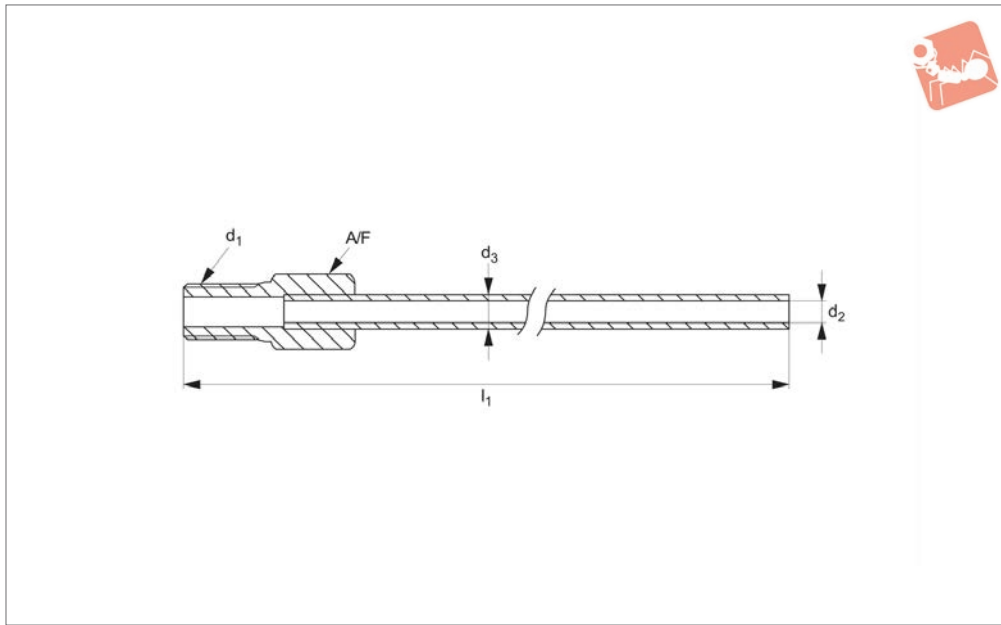




Extension Tube - For Coolant Nozzles

bendable - max. 33 bar

Coolant Nozzles



20092

COOLANT NOZZLES

Material

Tube: copper.
Connector: threaded brass.

Max. pressure: 33 bar.

Bend and cut to length as required.

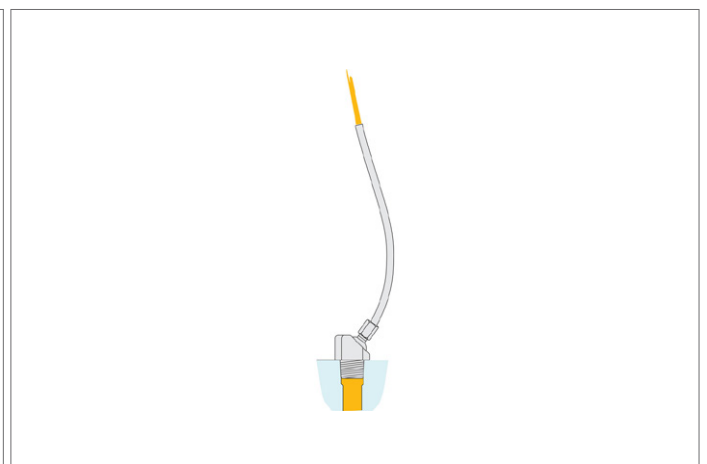
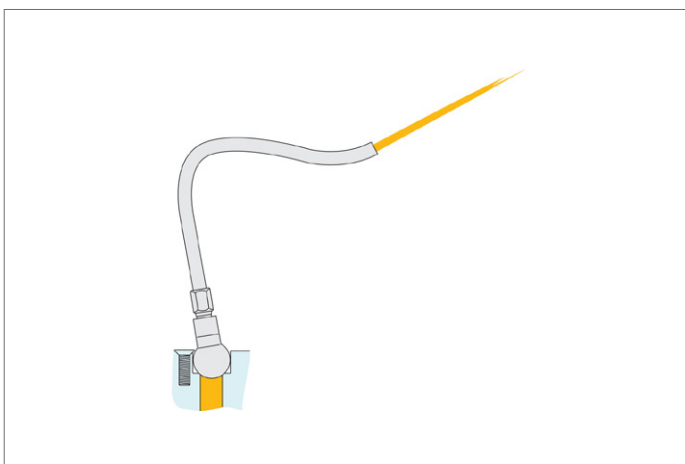
Technical Notes

Max. temperature: 150°C.

Tips

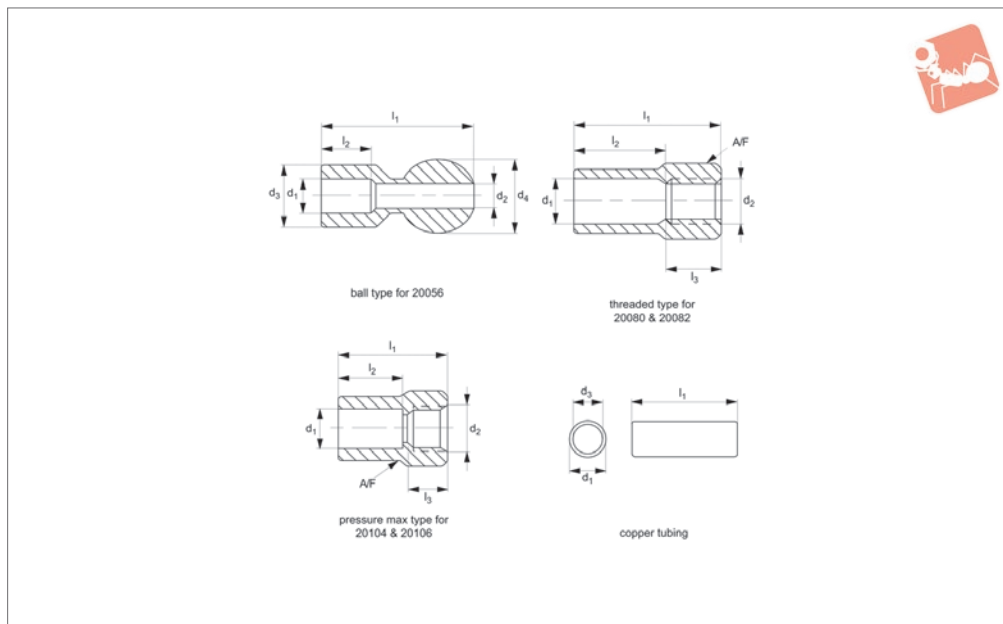
For use with many of our coolant nozzles,
or as stand alone units.

Order No.	d ₁	d ₂	d ₃	l ₁	A/F
20092.W0030	M 3,5x0,60	1.8	3.2	155.5	3/16"
20092.W0040	M 4x0,70	1.8	3.2	155.5	3/16"
20092.W0050	M 5x0,80	3.0	4.8	155.5	1/4"
20092.W0060	M 6x1,00	3.0	4.8	155.5	1/4"
20092.W0070	M 7x1,00	4.6	6.4	155.5	5/16"
20092.W0080	M 8x1,25	4.6	6.4	155.5	5/16"
20092.W0081	M 8x0,50	3.0	4.8	155.5	6
20092.W0082	M 8x0,50	4.6	6.4	155.5	7
20092.W0100	M10x0,50	3.0	4.8	155.5	6
20092.W0101	M10x0,50	4.6	6.4	155.5	8
20092.W0120	M12x0,50	3.0	4.8	155.5	6
20092.W0121	M12x0,50	4.6	6.4	155.5	8
20092.W0122	M12x0,50	6.4	7.9	155.5	10





20093



Material

Brass.

Technical Notes

Max. temperature: 70°C.

Max. pressure: 33 bar.

Tips

Sweat fittings allow a wide variety of coolant nozzles to be mounted to copper tubing, increasing reliability through use of short rigid hose. For use with coolant

nozzles 20056, 20080, 20082, 20104 and 20106. See table for compatibility. Easy to solder.

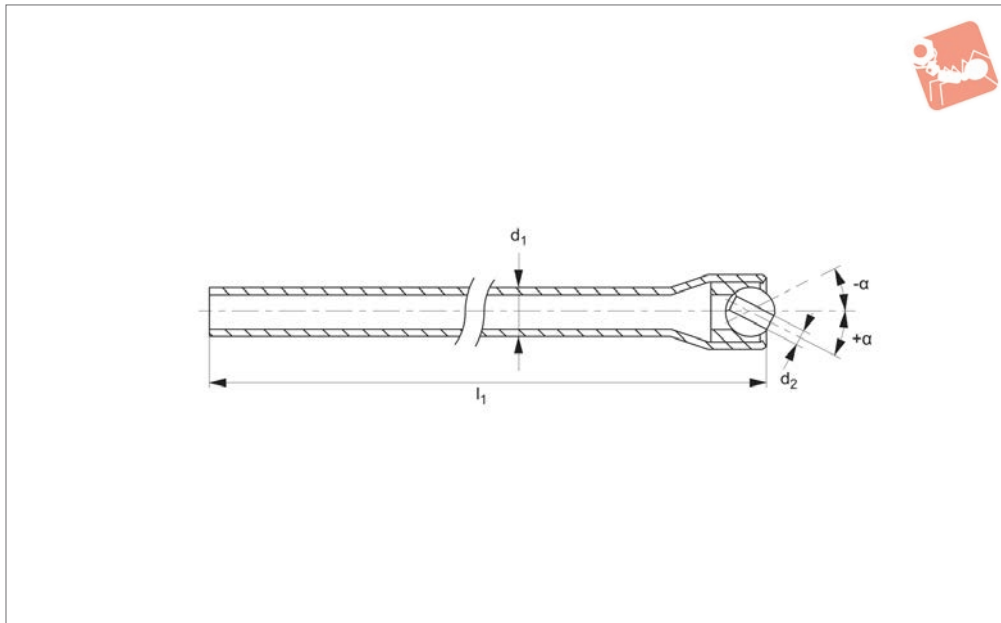
Order No.	Type	For use with	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₃	A/F
20093.W0250	Ball Type	20056	6.4	5.6	9.6	12	25.1	9.6	-	-
20093.W0310	Ball Type	20056	7.9	5.6	11.2	12	26.7	11.2	-	-
20093.W0370	Ball Type	20056	9.5	5.6	12.4	12	29.2	12.4	-	-
20093.W1190	Threaded Type	20080/20082	4.8	M 5x0,80	-	-	14.2	7.9	6.4	6.4
20093.W1250	Threaded Type	20080/20082	6.4	M 6x1,00	-	-	15.7	9.4	6.4	7.9
20093.W1340	Threaded Type	20080/20082	7.9	M 8x1,25	-	-	20.6	12.7	7.9	9.7
20093.W1370	Threaded Type	20080/20082	9.5	1/8" NPT/BSPT	-	-	23.9	14.2	6.4	12.7
20093.W2250	Pressure Max Type	20104/20106	6.4	5/16"-24 UNJF	-	-	17.3	9.7	5.0	11.2
20093.W2251	Pressure Max Type	20104/20106	6.4	7/16"-20 UNJF	-	-	19.0	10.7	5.0	14.2
20093.W2310	Pressure Max Type	20104/20106	7.9	7/16"-20 UNJF	-	-	19.0	11.2	5.0	14.2
20093.W2311	Pressure Max Type	20104/20106	7.9	1/2"-20 UNJF	-	-	25.4	14.2	6.3	15.7
20093.W2370	Pressure Max Type	20104/20106	9.5	7/16"-20 UNJF	-	-	19.0	11.2	5.0	14.2
20093.W2371	Pressure Max Type	20104/20106	9.5	1/2"-20 UNJF	-	-	25.4	14.2	6.3	15.7
20093.W5190	Copper Tubing	Copper Tube	4.8	-	3.0	-	3000.0	-	-	-
20093.W5250	Copper Tubing	Copper Tube	6.4	-	4.6	-	3000.0	-	-	-
20093.W5310	Copper Tubing	Copper Tube	7.9	-	6.3	-	3000.0	-	-	-
20093.W5370	Copper Tubing	Copper Tube	9.5	-	7.9	-	3000.0	-	-	-



Directional Spray - Single Tube

bendable - max. 33 bar

Coolant Nozzles



20094

COOLANT NOZZLES

Material

Tube: copper.
Inserts: acetal.
Ball: stainless steel.

Max. pressure: 33 bar.
symbola/symbol is an angle of adjustment
either side of centre line.

(right angle) or 20096 (straight).

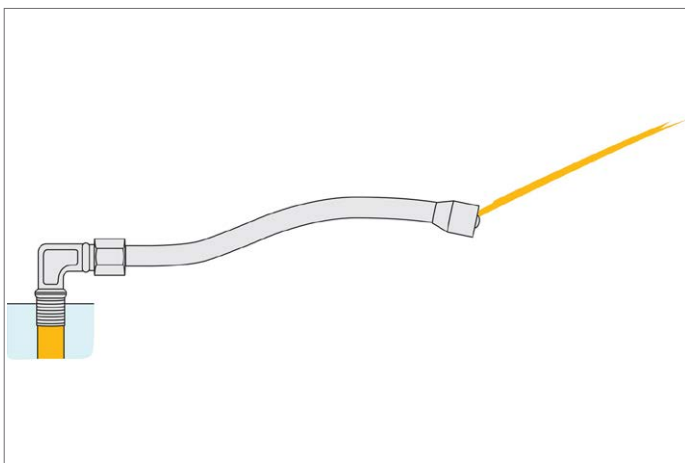
Technical Notes

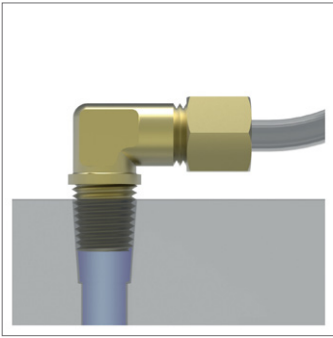
Max. temperature: 70°C.

Tips

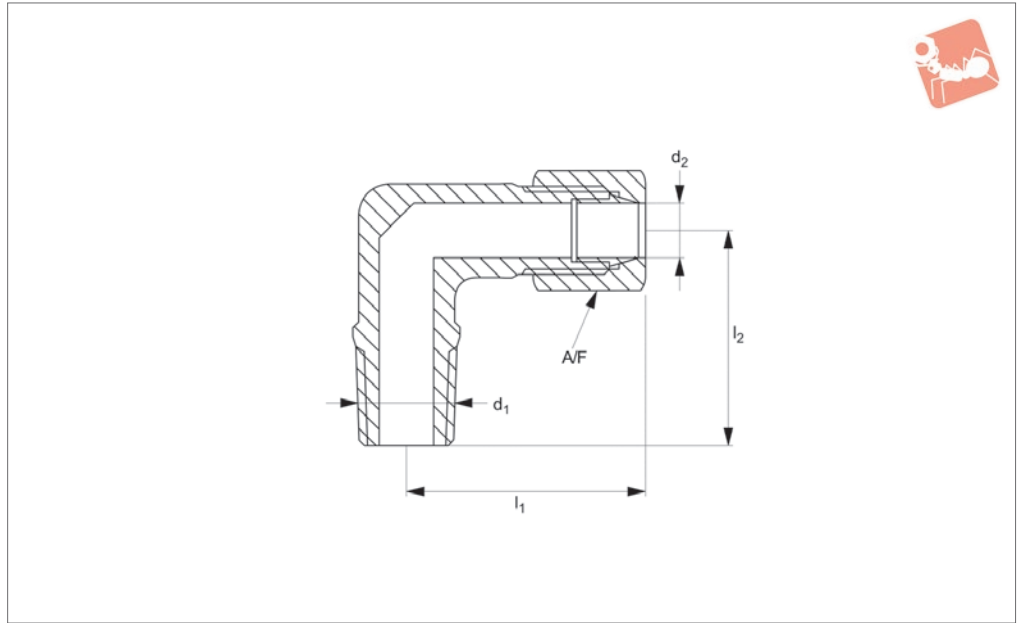
Adjustable direction ball on tip.
Can be combined with connectors 20095

Order No.	d_1	d_2	Jet bore d_2	l_1	α
20094.W0040	4.8	2	Plain	146.0	$\pm 35^\circ$
20094.W6060	6.4	M 3,5x0,6	Threaded	146.0	$\pm 35^\circ$
20094.W6070	7.9	M 4x0,7	Threaded	298.5	$\pm 35^\circ$
20094.W6090	9.5	M 5x0,8	Threaded	298.5	$\pm 35^\circ$





20095



Material

Brass connector (supplied with olive).

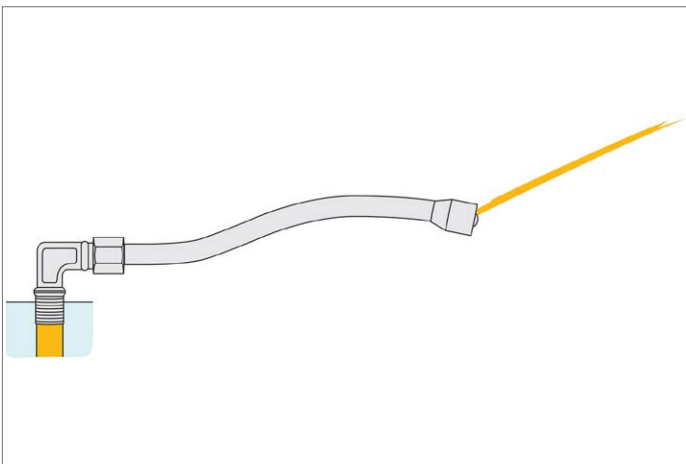
Max. pressure: 33 bar.

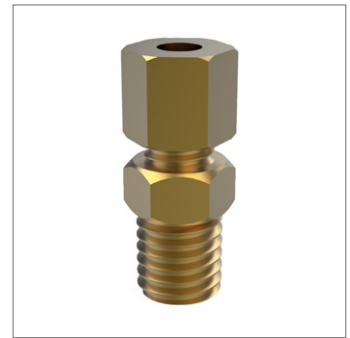
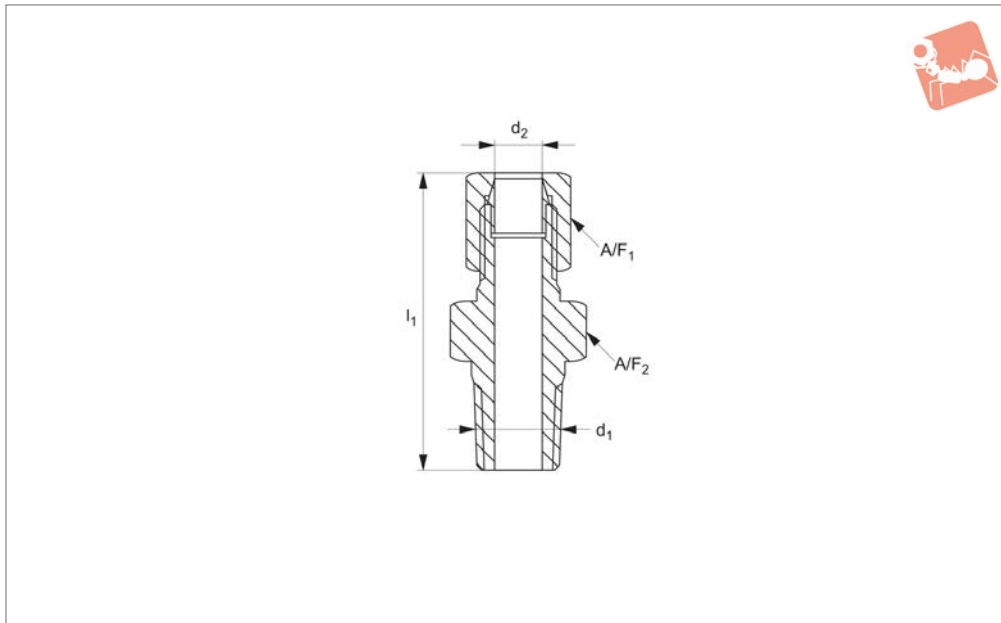
For use with adjustable direction spray nozzle tube 20094.

Technical Notes

Max. temperature: 150°C.

Order No.	Type	Tube size mm	d ₁	d ₂	l ₁	l ₂	A/F
20095.W1120	1/8" NPT/BSPT	3/16"	1/8"	3/8" - 24 UN	21.3	17.5	7/16"
20095.W1121	1/8" NPT/BSPT	1/4"	1/8"	7/16" - 24 UN	21.8	18.8	1/12"
20095.W1122	1/8" NPT/BSPT	5/16"	1/8"	1/2" - 24 UN	22.4	18.8	9/16"
20095.W1250	1/4" NPT/BSPT	3/16"	1/4"	3/8" - 24 UN	21.8	23.6	7/16"
20095.W1251	1/4" NPT/BSPT	1/4"	1/4"	7/16" - 24 UN	21.8	23.9	1/2"
20095.W1252	1/4" NPT/BSPT	5/16"	1/4"	1/2" - 24 UN	24.1	23.6	9/16"
20095.W1253	1/4" NPT/BSPT	3/8"	1/4"	9/24" - 24 UN	26.2	23.6	5/8"
20095.W1370	3/8" NPT/BSPT	3/8"	3/8"	9/24" - 24 UN	26.2	25.4	5/8"





20096

COOLANT NOZZLES

Material

Brass connector (supplied with olive).

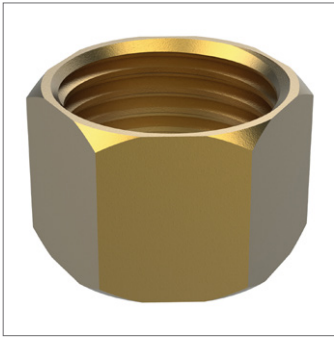
Max. pressure: 33 bar.

For use with adjustable direction spray nozzle tube 20094.

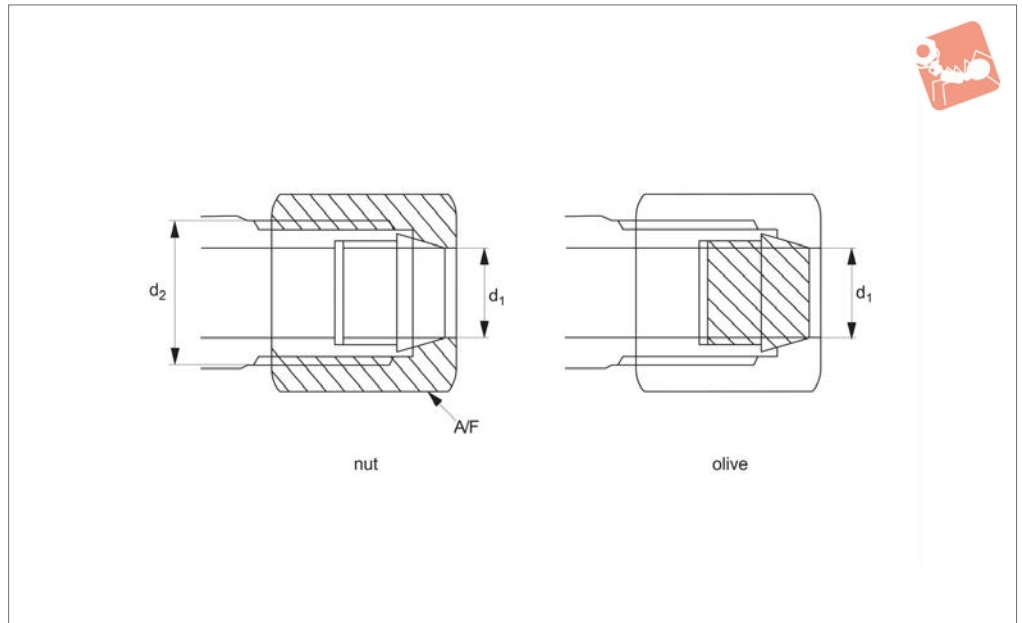
Technical Notes

Max. temperature: 70°C.

Order No.	Type	d ₁	d ₂	l ₁	A/F ₁	A/F ₂
20096.W0080	Metric fine	M 8x1,00	4.8	28.0	7/16"	7/16"
20096.W0100	Metric fine	M10x1,25	4.8	28.7	7/16"	7/16"
20096.W1101	Metric fine	M10x1,00	4.8	28.7	7/16"	7/16"
20096.W1080	Metric coarse	M 8x1,25	4.8	28.0	7/16"	7/16"
20096.W1100	Metric coarse	M10x1,50	4.8	28.7	7/16"	7/16"
20096.W1120	Metric coarse	M12x1,75	6.4	30.5	1/2"	1/2"
20096.W2060	NPT/BSPT	1/16"	4.8	27.4	7/16"	7/16"
20096.W1130	NPT/BSPT	1/8"	4.8	27.4	7/16"	7/16"
20096.W1131	NPT/BSPT	1/8"	6.4	28.0	1/2"	7/16"
20096.W1132	NPT/BSPT	1/8"	7.9	29.2	9/16"	1/2"
20096.W1250	NPT/BSPT	1/4"	4.8	32.3	7/16"	9/16"
20096.W1251	NPT/BSPT	1/4"	6.4	33.0	1/2"	9/16"
20096.W1252	NPT/BSPT	1/4"	7.9	33.8	9/16"	9/16"
20096.W1253	NPT/BSPT	1/4"	9.5	36.0	5/8"	9/16"
20096.W1370	NPT/BSPT	3/8"	9.5	36.6	5/8"	5/8"



20097



Material

Brass.

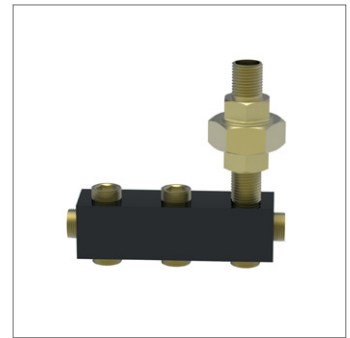
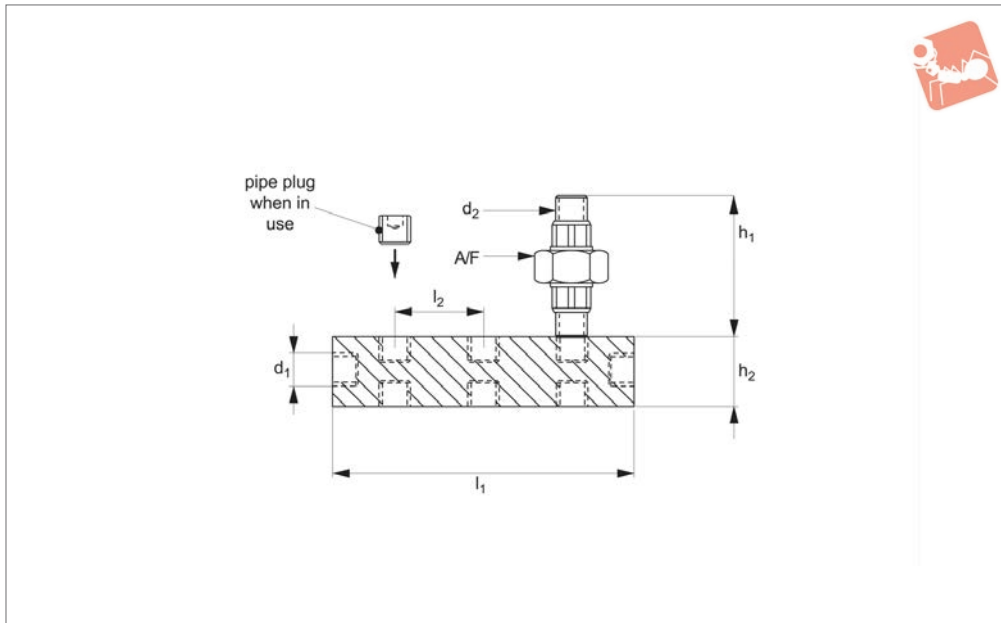
Max. pressure: 33 bar.

For angled or straight connectors 20095 and 20096.

Technical Notes

Max. temperature: 150°C.

Order No.	Type	d ₁	Internal thread d ₂	A/F
20097.W1040	Nut	4.8	3/8" - 24 UNF	7/16"
20097.W1060	Nut	6.4	7/16" - 24 UNF	1/2"
20097.W1070	Nut	7.9	1/2" - 24 UNF	9/16"
20097.W1090	Nut	9.5	9/16" - 24 UNF	5/8"
20097.W2040	Olive	4.8	-	-
20097.W2060	Olive	6.4	-	-
20097.W2070	Olive	7.9	-	-
20097.W2090	Olive	9.5	-	-



20114

COOLANT NOZZLES

Material

Manifold: anodized aluminium.
 Thread connectors: brass.
 Pipe plugs: plated steel.

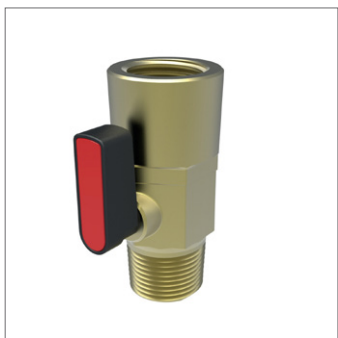
Thread union: brass.

Max. pressure: 33 bar.

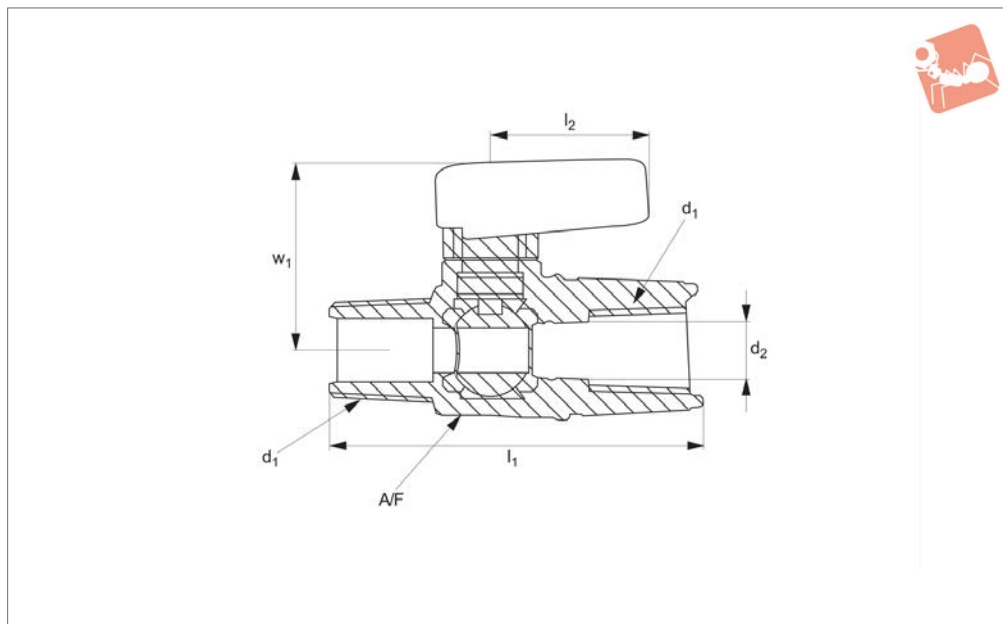
Technical Notes

Max. temperature: 70°C.

Order No.	d_1	d_2	h_1	h_2	l_1	l_2	A/F
20114.W2250	1/4" NPT	1/4" NPT/BSPT	76.2	25.4	88.9	31.8	1-3/16"



20118



Material

Brass, chrome plated.
Teflon seals.

Technical Notes

Max. temperature: 80°C.
Max. pressure: 16 bar.

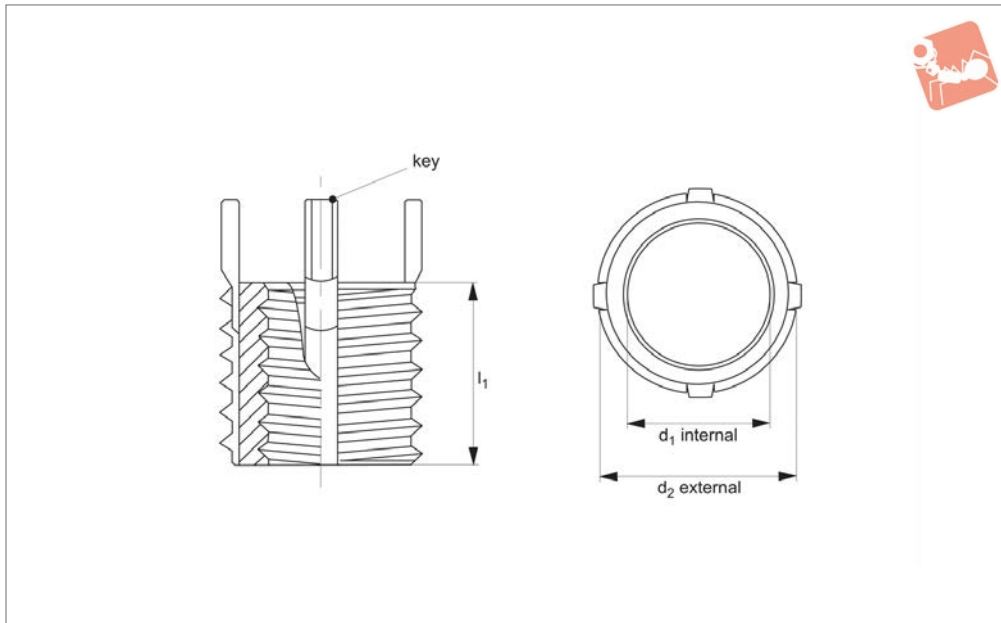
Order No.	d ₁	d ₂	l ₁	l ₂	w ₁	A/F	Handle colour
20118.W1120	1/8" BSPT	5.3	36.0	18.8	21.8	14	Red
20118.W1250	1/4" BSPT	5.3	43.2	18.8	21.8	14	Red
20118.W1370	3/8" BSPT	7.9	46.0	18.8	23.4	18	Red
20118.W3120	1/8" NPTF	5.3	36.8	18.8	21.8	14	Blue
20118.W3250	1/4" NPTF	5.3	43.2	18.8	21.8	14	Blue
20118.W3370	3/8" NPTF	7.9	48.0	18.8	23.4	18	Blue



Threaded Insert - Metric - Inch heavy duty - carbon steel



Threaded Inserts



22010

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M8 and over. Two locking keys on internal

threads smaller than M8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

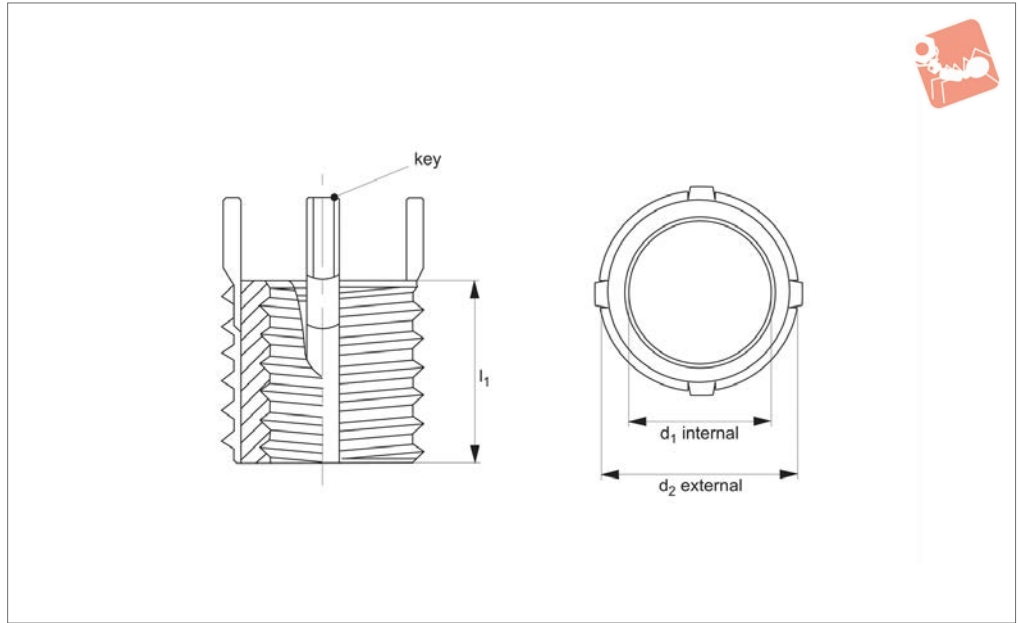
Removal drill size and drill depth as specified in table.

Internal thread in metric. External thread in inches.

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22064	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22010.W0430	M 6x1,00	Coarse	3/8"-16	UNC	0,31	.W0430	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22010.W0440	M 8x1,25	Coarse	1/2"-13	UNC	0,43	.W0440	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22010.W0450	M10x1,50	Coarse	5/8"-11	UNC	0,50	.W0450	37/64"	0,63	5/8"-11	0,56	17/32"	3/16"
22010.W0470	M12x1,75	Coarse	3/4"-16	UNF	0,62	.W0470	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22010.W0480	M14x2,00	Coarse	7/8"-14	UNF	0,81	.W0480	53/64"	0,88	7/8"-14	0,94	25/32"	5/16"
22010.W0490	M16x2,00	Coarse	1"-12	UNF	0,87	.W0490	15/16"	1,02	1"-12	1,00	27/32"	5/16"



22012



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001"
0,500 and over = +0,005/-0,001"

Tips

Order installation tool separately, as identified by „Inst. Tool ref.“ in table.

Important Notes

Four locking keys on internal threads M8 and over. Two locking keys on internal

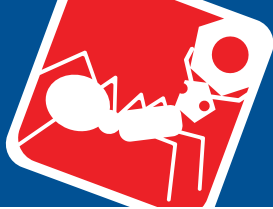
threads smaller than M8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

Internal thread in metric. External thread in inches.

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22064	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22012.W5430	M 6x1,00	Coarse	3/8"-16	UNC	0,3	.W0430	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22012.W5440	M 8x1,25	Coarse	1/2"-13	UNC	0,4	.W0440	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22012.W5450	M10x1,50	Coarse	5/8"-11	UNC	0,5	.W0450	37/64"	0,63	5/8"-11	0,56	17/32"	3/16"
22012.W5470	M12x1,75	Coarse	3/4"-16	UNF	0,6	.W0470	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22012.W5480	M14x2,00	Coarse	7/8"-14	UNF	0,8	.W0480	53/64"	0,88	7/8"-14	0,94	25/32"	5/16"
22012.W5490	M16x2,00	Coarse	1"-12	UNF	0,9	.W0490	15/16"	1,02	1"-12	1,00	27/32"	5/16"



Threaded inserts are used to quickly repair stripped, damaged or worn out threads with new stronger threads, or are used in original equipment to guarantee stronger thread connections.

Wixroyd inserts are easy to install and remove, without the need for special drills, taps or pre-winder tools. The 'locking keys' on threaded inserts are easily driven down into the thread of the surrounding base material – locking the insert securely in place.



Carbon steel inserts



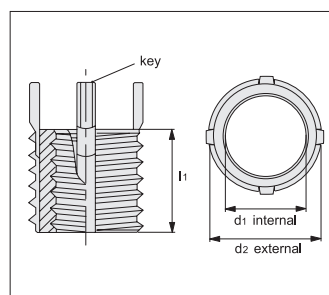
Stainless steel inserts



Solid inserts

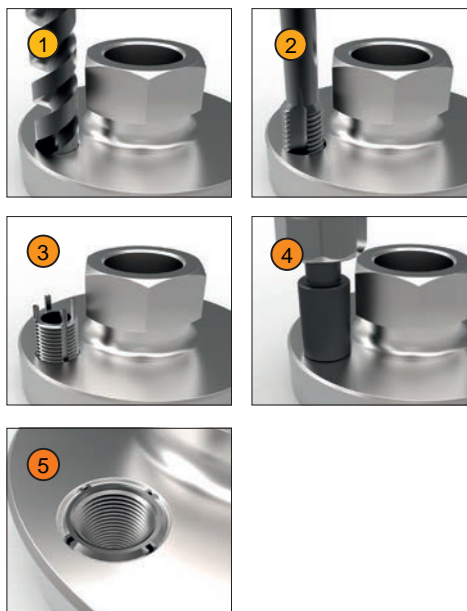
Key Features

- Solid, one-piece construction providing high pull-out strengths.
- Locking "keys" provide a positive mechanical lock against rotation of the insert.
- Easy installation and removal.
- Installation with standard drills and taps.
- No pre-winder tools required.
- No tangs to break off and account for in the assembly.
- For use in a wide variety of materials.
- Both metric and imperial sizes available in coarse and fine pitches.



Installation and Removal

- 1 Select desired threaded insert, and from the product data table identify the installation drill and tap sizes (note the drill is slightly oversized deliberately). Drill with standard tap drill as per product data table, and countersink with standard 82-100° countersink.
- 2 Tap new threads with standard tap – as specified in product data table.
- 3 Screw in the insert until it is 0.25 to 0.75mm (0.010 to 0.030 inch) below the surface.
- 4 Drive locking keys down with several hammer taps on the installation tool – see product data table for correct tool.
- 5 Insert is installed.



Installation

Wixroyd threaded inserts, can be removed (if required) without damage to the surrounding material.

- 1 Refer to product data tables to identify the drill size and drill depth required for removal. Drill out the material between the insert keys and the internal thread to specified depth.

- 2 Bend the locking keys inward and break off.
- 3 Remove the old insert using a screw extractor.
- 4 Install a replacement insert into the original tapped hole.

Removal



Stainless Steel



22000 - Thinwall - Metric
Use installation tool no. 22060.



22002 - Heavy Duty - Metric.
Use installation tool no. 22062.



22012 - Heavy Duty - Metric - Inch.
Use installation tool no. 22064.



22020, 22022, 22024 - Inch - Thinwall - Heavy Duty - Extra Heavy Duty.
Use installation tool no. 22054-58.

Carbon Steel



22004 - Thinwall - Metric
Use installation tool no. 22060.



22006 - Heavy Duty - Metric
Use installation tool no. 22062.



22010 - Heavy Duty - Metric - Inch.
Use installation tool no. 22064.



22030 - 22034 - Inch - Thinwall - Heavy Duty - Extra Heavy Duty
Use installation tool no. 22054, 20058.

Solid



22040 - Metric - Carbon
Use installation tool no. 22052.



22042 - Metric - Stainless Steel
Use installation tool no. 22052.



22044 - Inch - Carbon
Use installation tool no. 22050.



22046 - Inch - Stainless Steel
Use installation tool no. 22050.

Installation Tools



22050 for 22044 & 22046



22052 for 22040 & 22042



22054, 22058 for 22020, 22024, 22030, 22034,



22060 for 22000 & 22004



22062 for 22002 & 22006



22064 for 22010 & 22012

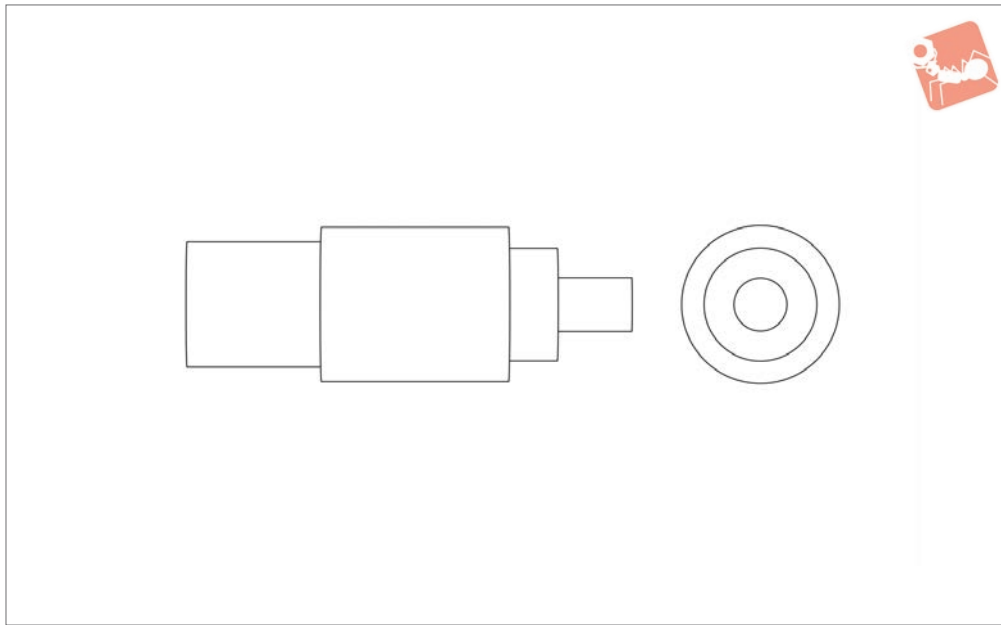


Installation Tool - Inch - Heavy Duty

for threaded inserts 22010 & 22012



Threaded Inserts



22064

THREADED INSERTS

Material

Steel, blackened.

Tips

For use with inch heavy duty threaded

inserts 22010 and 22012.

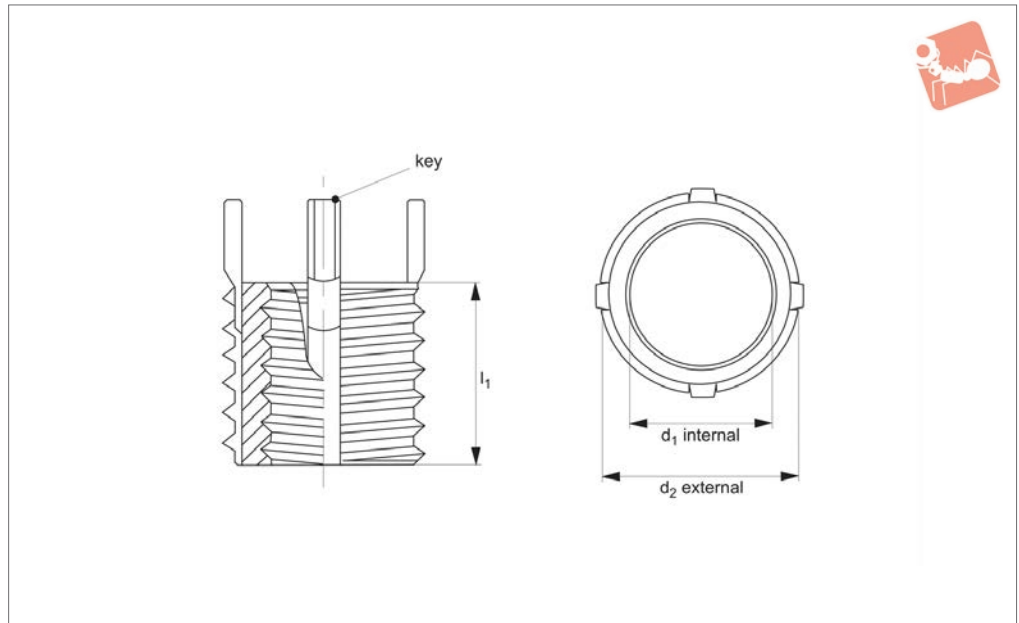
Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of

insert where correct „Inst. tool ref.“ is stated.

Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22064.W0430	M 6x1,00	3/8"-16
22064.W0440	M 8x1,25	1/2"-13
22064.W0450	M10x1,50	5/8"-11
22064.W0470	M12x1,75	3/4"-16
22064.W0480	M14x2,00	7/8"-14
22064.W0490	M16x2,00	1"-12



22000



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.
 Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.
 12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.
 Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.
 Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22060	Inst. c'sink dia. ±0.25 ± 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
22000.W5510	M 5x0,80	Coarse	M 8x1,25	Coarse	8	6,9	.W0510	8,3	M 8x1,25	9,5	5,5	4,0
22000.W5520	M 6x1,00	Coarse	M10x1,25	Fine	10	8,8	.W0520	10,3	M10x1,25	11,5	7,5	4,8
22000.W5530	M 8x1,25	Coarse	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
22000.W5531	M 8x1,00	Fine	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
22000.W5550	M10x1,50	Coarse	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
22000.W5551	M10x1,25	Fine	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
22000.W5560	M12x1,75	Coarse	M16x1,50	Fine	16	14,2	.W0560	14,3	M16x1,50	17,5	13,5	4,8
22000.W5561	M12x1,25	Fine	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8

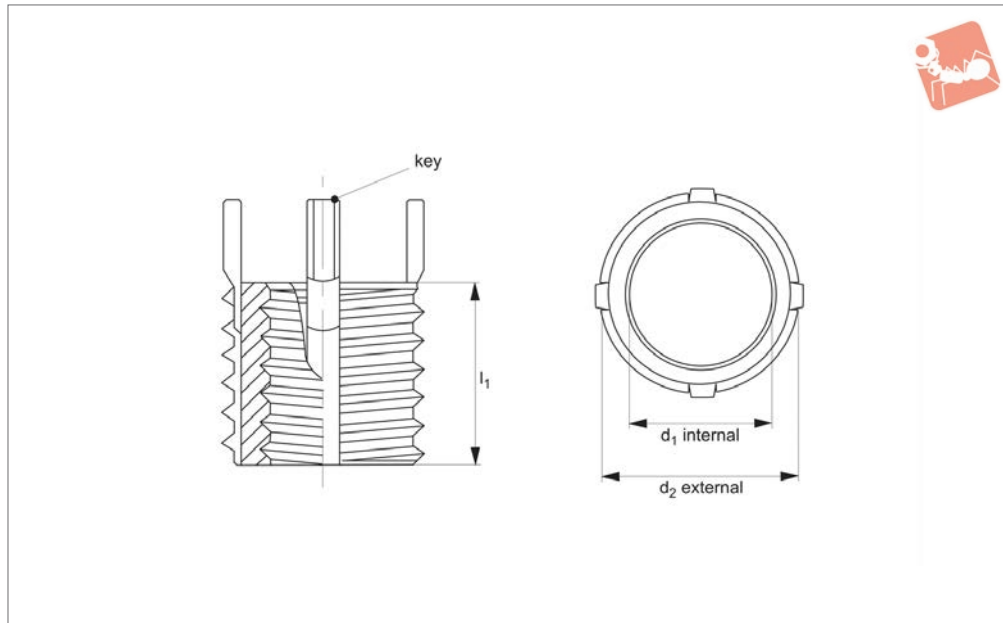


Threaded Insert - Metric

thinwall - carbon steel



Threaded Inserts



22004

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

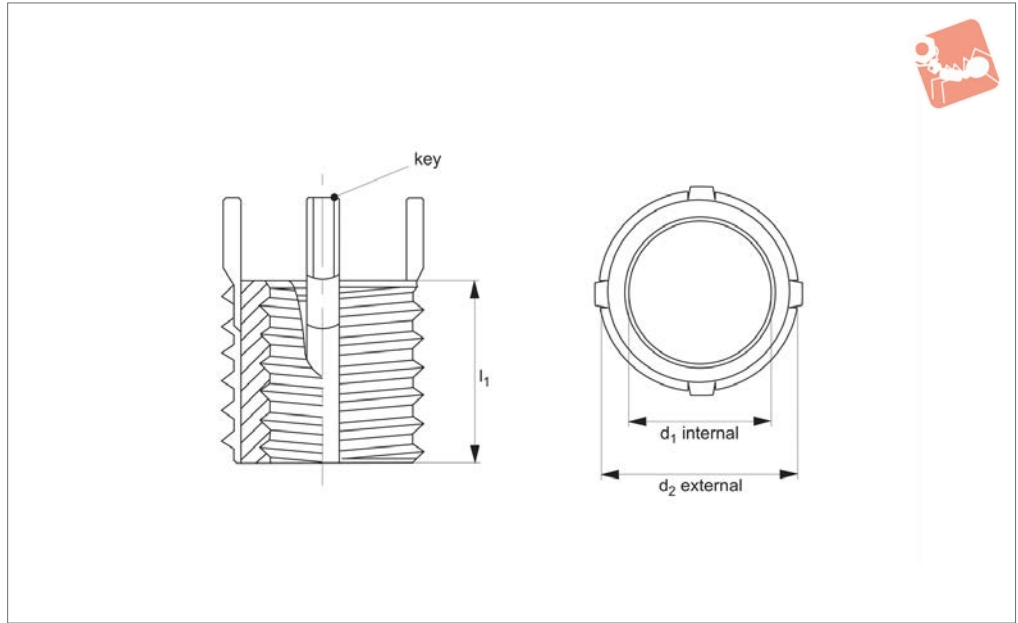
Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22060	Inst. c'sink dia. ±0,25 ± 0,000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
22004.W0510	M 5x0,80	Coarse	M 8x1,25	Coarse	8	6,9	.W0510	8,3	M 8x1,25	9,5	5,5	4,0
22004.W0520	M 6x1,00	Coarse	M10x1,25	Fine	10	8,8	.W0520	10,3	M10x1,25	11,5	7,5	4,8
22004.W0530	M 8x1,25	Coarse	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
22004.W0531	M 8x1,00	Fine	M12x1,25	Fine	12	10,8	.W0530	12,3	M12x1,25	13,5	9,5	4,8
22004.W0550	M10x1,50	Coarse	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
22004.W0551	M10x1,25	Fine	M14x1,50	Fine	14	12,8	.W0550	14,3	M14x1,50	15,5	11,5	4,8
22004.W0560	M12x1,75	Coarse	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8
22004.W0561	M12x1,25	Fine	M16x1,50	Fine	16	14,8	.W0560	16,3	M16x1,50	17,5	13,5	4,8



22020



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

All dimensions in inches.

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001"

0,500 and over = +0,005/-0,001"

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/

16" and over. Two locking keys on internal threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

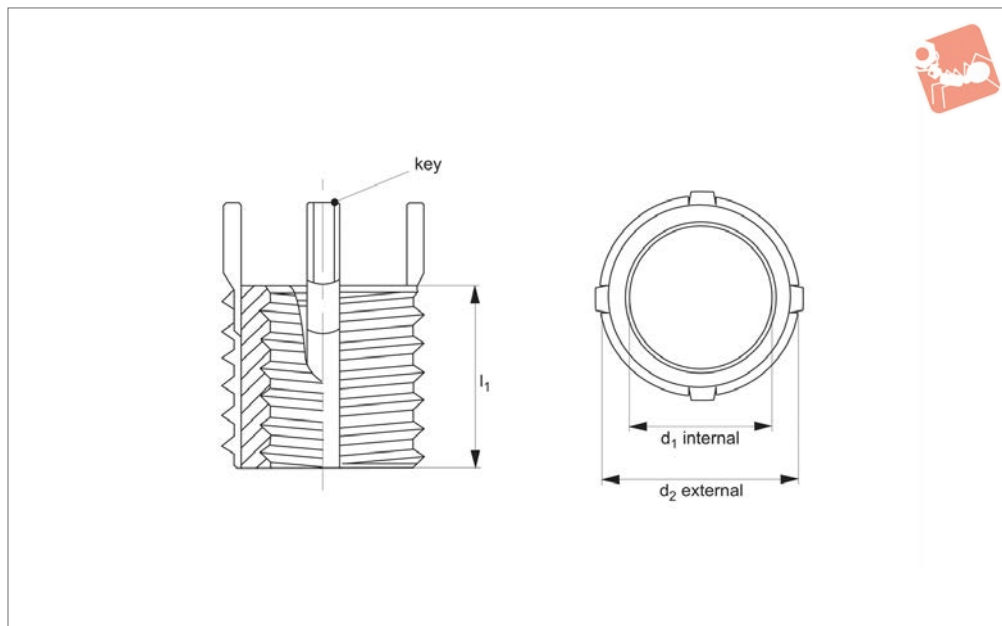
Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22054	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22020.W5210	10-24	UNC	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
22020.W5211	10-32	UNF	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
22020.W5220	1/4"-20	UNC	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
22020.W5221	1/4"-28	UNF	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
22020.W5230	5/16"-18	UNC	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
22020.W5231	5/16"-24	UNF	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
22020.W5240	3/8"-16	UNC	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
22020.W5241	3/8"-16	UNF	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
22020.W5250	7/16"-14	UNC	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
22020.W5251	7/16"-20	UNF	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
22020.W5260	1/2"-13	UNC	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"
22020.W5261	1/2"-20	UNF	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"



Threaded Insert - Inch thinwall - carbon steel



Threaded Inserts



22030

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

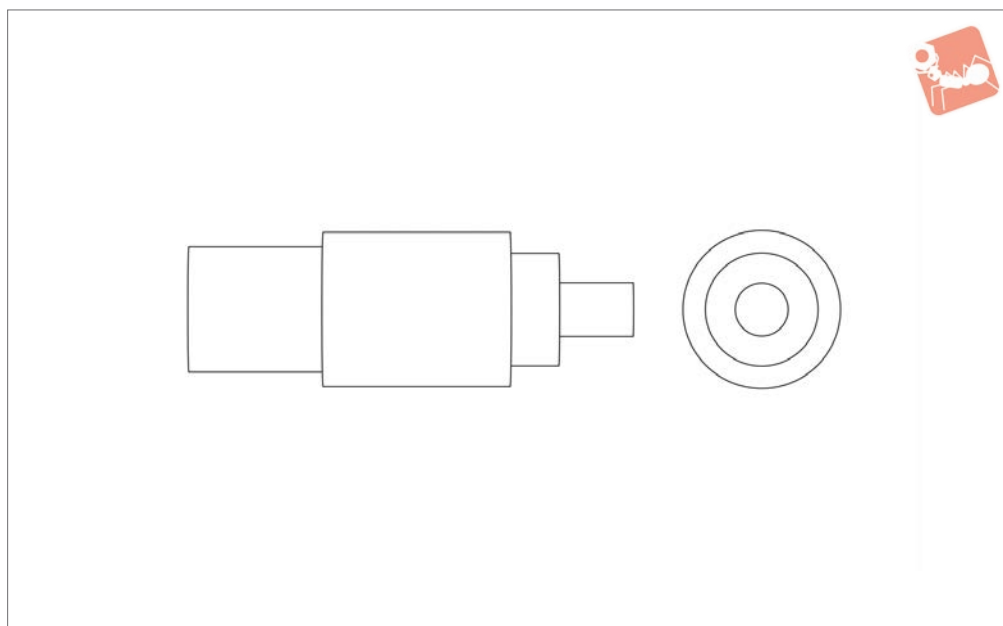
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tap drill size	Inst. tool ref. 22054	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22030.W0210	10-24	UNC	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
22030.W0211	10-32	UNF	5/16"-18	UNC	0,31	17/64"	.W0210	0,32	5/16"-18	0,37	7/32"	1/8"
22030.W0220	1/4"-20	UNC	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
22030.W0221	1/4"-28	UNF	3/8"-16	UNC	0,37	21/64"	.W0220	0,38	3/8"-16	0,43	9/32"	3/16"
22030.W0230	5/16"-18	UNC	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
22030.W0231	5/16"-24	UNF	7/16"-14	UNC	0,43	25/64"	.W0230	0,44	7/16"-14	0,50	11/32"	3/16"
22030.W0240	3/8"-16	UNC	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
22030.W0241	3/8"-24	UNF	1/2"-13	UNC	0,50	29/64"	.W0240	0,51	1/2"-13	0,56	13/32"	3/16"
22030.W0250	7/16"-14	UNC	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
22030.W0251	7/16"-20	UNF	9/16"-12	UNC	0,56	33/64"	.W0250	0,57	9/16"-12	0,62	15/32"	3/16"
22030.W0260	1/2"-13	UNC	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"
22030.W0261	1/2"-20	UNF	5/8"-11	UNC	0,62	37/64"	.W0260	0,63	5/8"-11	0,68	17/32"	3/16"



22054



Material

Steel, blackened.

Tips

For use with inch thinwall threaded

inserts 22020 and 22030. Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of insert where

correct „Inst. tool ref.“ is stated.

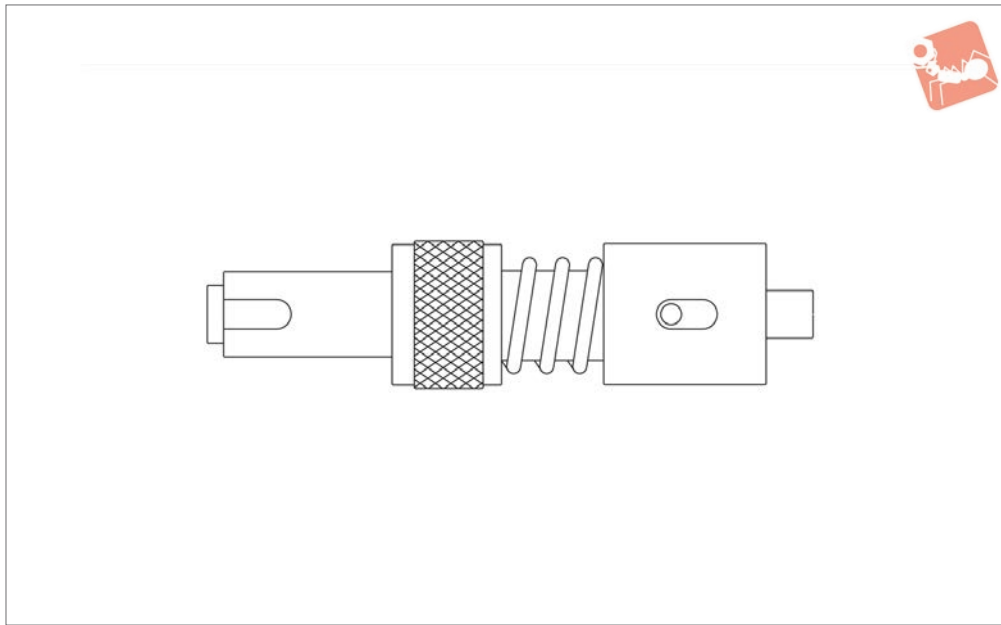
Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22054.W0210	10-24/10"-32	5/16"-18
22054.W0220	1/4"-20 / 1/4"-28	3/8"-16
22054.W0230	5/16"-18/ 5/16"-24	7/16"-14
22054.W0240	3/8"-16/ 3/8"-24	1/2"-13
22054.W0250	7/16"-14/ 7/16"-20	9/16"-12
22054.W0260	1/2"-13/ 1/2"-20	5/8"-11



Installation Tool - Solid - Metric

for threaded inserts 22040 & 22042

Threaded Inserts



22052

THREADED INSERTS

Material

Steel, blackened.

Tips

For use with metric solid inserts 22040

and 22042.

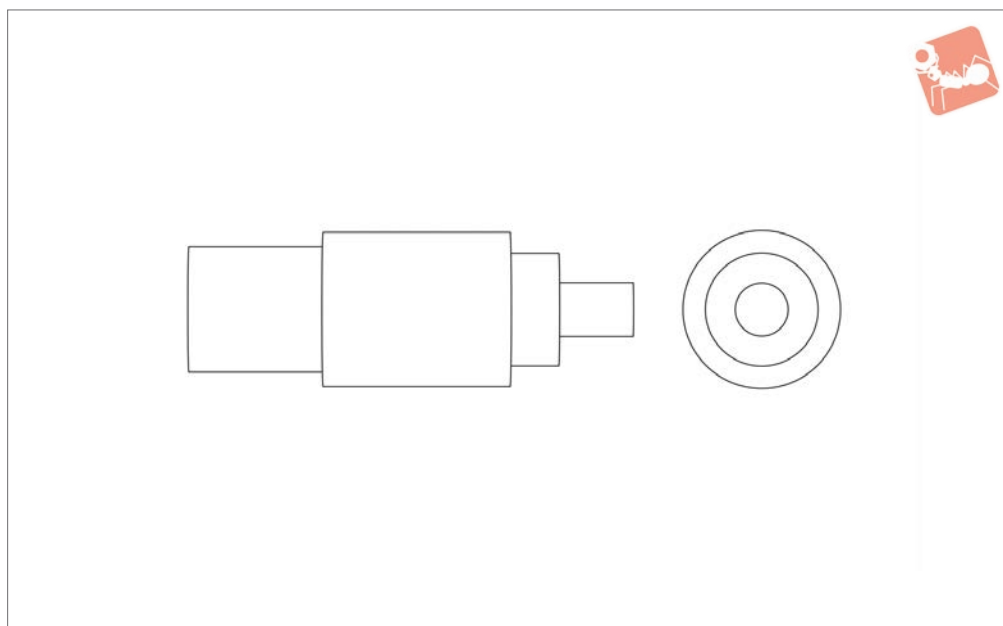
Select installation tool of corresponding insert external thread d_1 . If in doubt refer to data tables of insert where correct „Inst.

tool ref.“ is stated.

Order No.	For insert of external thread = d_1	Thread type d_1
22052.W0210	M 8x1,25	Coarse
22052.W0220	M10x1,25	Fine
22052.W0230	M12x1,25	Fine
22052.W0240	M14x1,50	Fine
22052.W0250	M16x1,50	Fine
22052.W0260	M18x1,50	Fine
22052.W0270	M20x1,50	Fine
22052.W0280	M22x1,50	Fine
22052.W0290	M24x1,50	Fine
22052.W0300	M30x2,00	Non-Std
22052.W0310	M32x2,00	Non-Std
22052.W0320	M33x2,00	Non-Std



22060



Material

Steel, blackened.

Tips

For use with metric thinwall threaded

inserts 22000 and 22004.

Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of

insert where correct „Inst. tool ref.“ is stated.

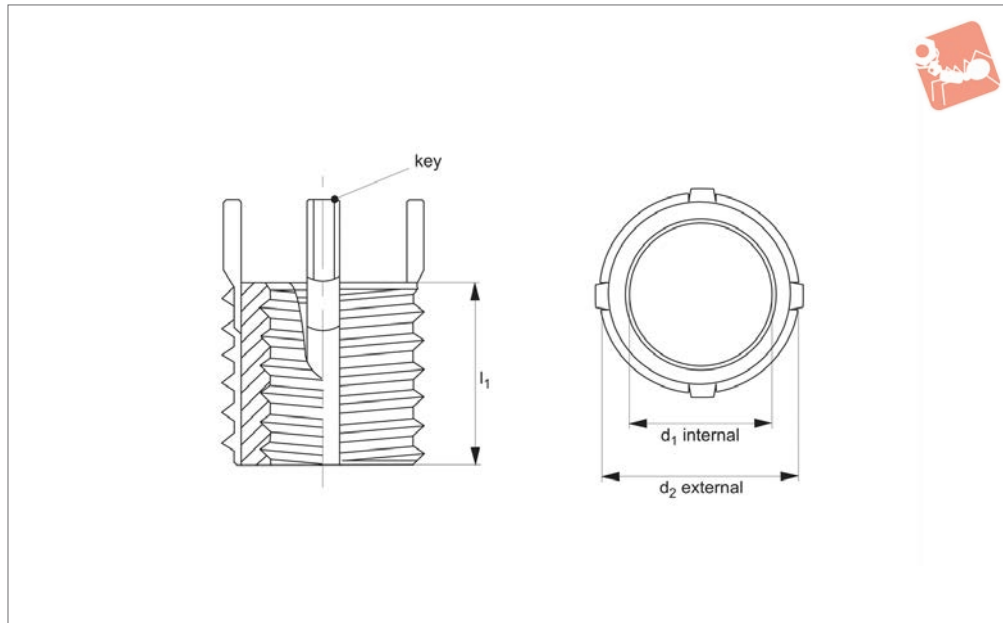
Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22060.W0510	M 5x0,75	M 8x1,25
22060.W0520	M 6x1,00	M10x1,25
22060.W0530	M 8x1,25/ M 8x1,00	M12x1,25
22060.W0550	M10x1,50/ M10x1,25	M14x1,50
22060.W0560	M12x1,75/ M12x1,25	M16x1,50



Threaded Insert - Metric heavy duty - stainless steel



Threaded Inserts



22002

THREADED INSERTS

Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

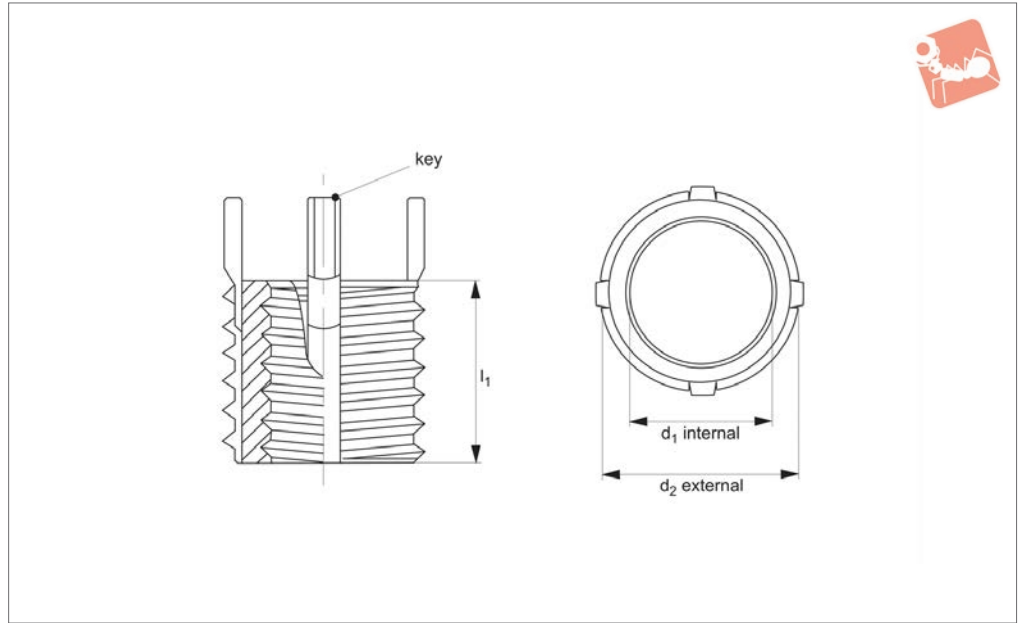
Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tool ref. 22062	Inst. tap drill size	Inst. c'sink dia. ±0.25 ± 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
22002.W5630	M 4x0,70	Coarse	M 8x1,25	Coarse	8	.W0630	6,9	8,3	M 8x1,25	9,5	5,5	4,0
22002.W5640	M 5x0,80	Coarse	M10x1,25	Fine	10	.W0640	8,8	10,3	M10x1,25	12,5	7,5	4,8
22002.W5650	M 6x1,00	Coarse	M12x1,25	Fine	12	.W0650	10,8	12,3	M12x1,25	14,5	9,5	4,8
22002.W5660	M 8x1,25	Coarse	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
22002.W5661	M 8x1,00	Fine	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
22002.W5670	M10x1,50	Coarse	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
22002.W5671	M10x1,25	Fine	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
22002.W5690	M12x1,75	Coarse	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
22002.W5691	M12x1,25	Fine	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
22002.W5700	M14x2,00	Coarse	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
22002.W5701	M14x1,50	Fine	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
22002.W5710	M16x2,00	Coarse	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
22002.W5711	M16x1,50	Fine	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
22002.W5720	M18x1,50	Fine	M24x1,50	Fine	24	.W0720	22,5	24,3	M24x1,50	26,5	19,8	6,4
22002.W5730	M20x2,50	Coarse	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
22002.W5731	M20x1,50	Fine	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
22002.W5740	M22x1,50	Fine	M32x2,00	Non-Std	32	.W0740	30,0	32,3	M32x2,00	36,5	27,8	6,4
22002.W5750	M24x3,00	Coarse	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4
22002.W5751	M24x2,00	Fine	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4



22006



Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

±0,25, unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads M 8 and over. Two locking keys on internal threads smaller than M 8.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as speci-

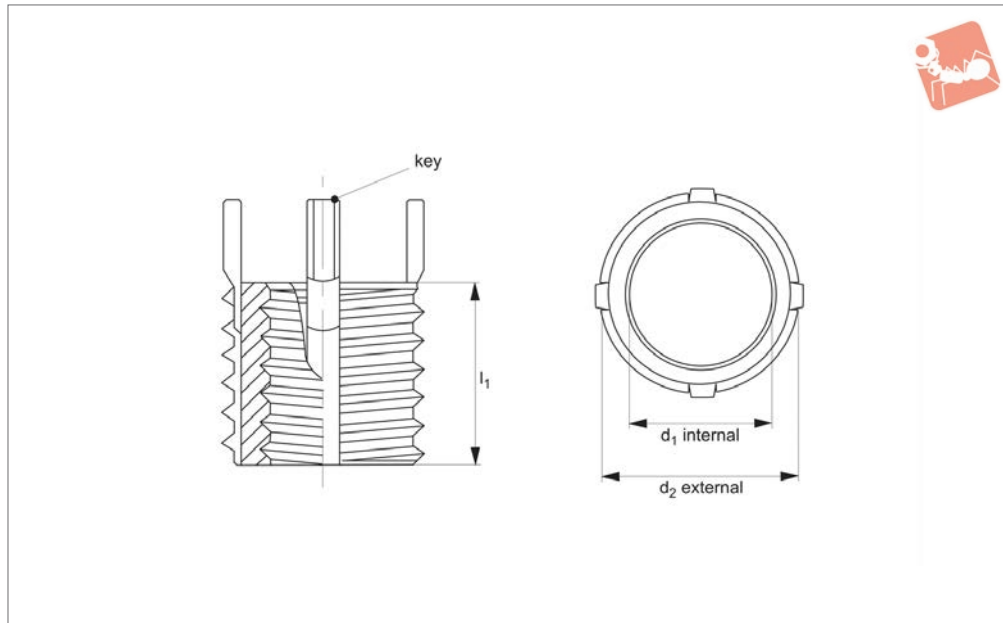
Order No.	Int. d ₁ tol. 6H	Int. thread type d ₁	Ext. d ₂ tol. 6g	Ext. thread type d ₂	l ₁	Inst. tool ref. 22062	Inst. tap drill size	Inst. c'sink dia. ±0.25 ± 0.000	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
22006.W0630	M 4x0,70	Coarse	M 8x1,25	Coarse	8	.W0630	6,9	8,3	M 8x1,25	9,5	5,5	4,0
22006.W0640	M 5x0,80	Coarse	M10x1,25	Fine	10	.W0640	8,8	10,3	M10x1,25	12,5	7,5	4,8
22006.W0650	M 6x1,00	Coarse	M12x1,25	Fine	12	.W0650	10,8	12,3	M12x1,25	14,5	9,5	4,8
22006.W0660	M 8x1,25	Coarse	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
22006.W0661	M 8x1,00	Fine	M14x1,50	Fine	14	.W0660	12,8	14,3	M14x1,50	16,5	11,5	4,8
22006.W0670	M10x1,50	Coarse	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
22006.W0671	M10x1,25	Fine	M16x1,50	Fine	16	.W0670	14,8	16,3	M16x1,50	18,5	13,5	4,8
22006.W0690	M12x1,75	Coarse	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
22006.W0691	M12x1,25	Fine	M18x1,50	Fine	18	.W0690	16,8	18,3	M18x1,50	20,5	15,5	4,8
22006.W0700	M14x2,00	Coarse	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
22006.W0701	M14x1,50	Fine	M20x1,50	Fine	20	.W0700	18,8	20,3	M20x1,50	22,5	17,5	4,8
22006.W0710	M16x2,00	Coarse	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
22006.W0711	M16x1,50	Fine	M22x1,50	Fine	22	.W0710	20,5	22,3	M22x1,50	24,5	17,8	6,4
22006.W0720	M18x1,50	Fine	M24x1,50	Fine	24	.W0720	22,5	24,3	M24x1,50	26,5	19,8	6,4
22006.W0730	M20x2,50	Coarse	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
22006.W0731	M20x1,50	Fine	M30x2,00	Non-Std	30	.W0730	28,0	30,3	M30x2,00	34,5	25,8	6,4
22006.W0740	M22x1,50	Fine	M32x2,00	Non-Std	32	.W0740	30,0	32,3	M32x2,00	36,5	27,8	6,4
22006.W0750	M24x3,00	Coarse	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4
22006.W0751	M24x2,00	Fine	M33x2,00	Non-Std	33	.W0750	31,0	33,3	M33x2,00	37,5	28,8	6,4



Threaded Insert - Inch heavy duty - stainless steel



Threaded Inserts



22022

THREADED INSERTS

Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

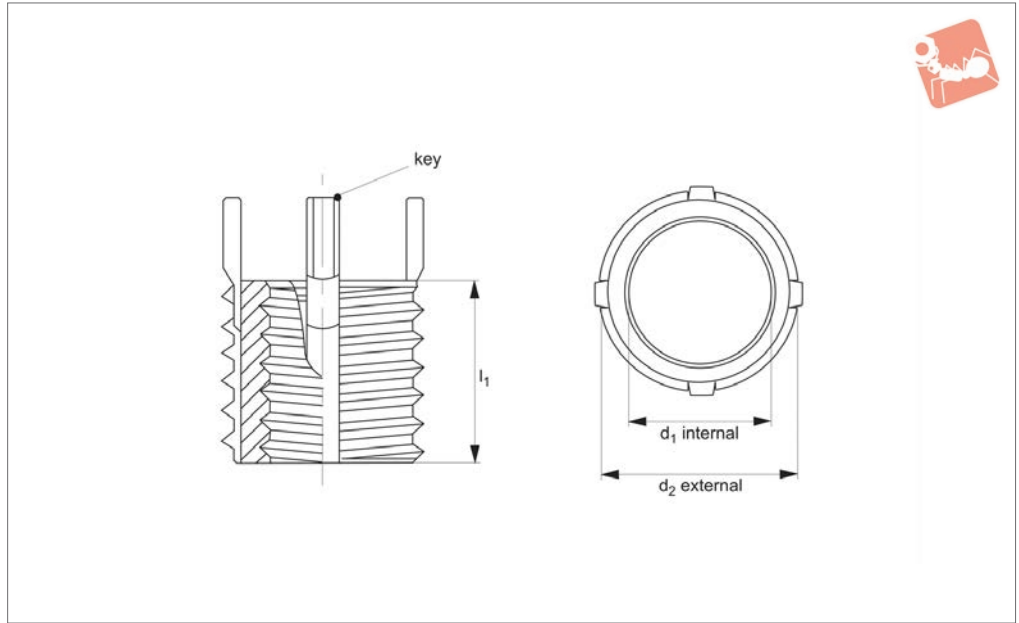
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22022.W5000	8-32	UNC	5/16"-18	UNC	0,31	.W0000	17/64"	0,32	5/16"-18	0,37	7/32"	1/8"
22022.W5010	10-24	UNC	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22022.W5011	10-32	UNF	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22022.W5020	1/4"-20	UNC	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
22022.W5021	1/4"-28	UNF	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
22022.W5030	5/16"-18	UNC	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22022.W5031	5/16"-24	UNF	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22022.W5040	3/8"-16	UNC	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
22022.W5041	3/8"-24	UNF	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
22022.W5050	7/16"-14	UNC	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
22022.W5051	7/16"-20	UNF	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
22022.W5060	1/2"-13	UNC	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22022.W5061	1/2"-20	UNF	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22022.W5070	9/16"-12	UNC	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
22022.W5071	9/16"-18	UNF	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
22022.W5080	5/8"-11	UNC	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
22022.W5081	5/8"-18	UNF	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
22022.W5090	3/4"-10	UNC	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
22022.W5091	3/4"-16	UNF	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
22022.W5100	7/8"-9	UNC	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22022.W5101	7/8"-14	UNF	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22022.W5110	1"-8	UNC	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
22022.W5111	1"-12	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"



22032



Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001"
0,500 and over = +0,005/-0,001"

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22032.W0000	8-32	UNC	5/16"-18	UNC	0,31	.W0000	17/64"	0,32	5/16"-18	0,37	7/32"	1/8"
22032.W0010	10-24	UNC	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22032.W0011	10-32	UNF	3/8"-16	UNC	0,31	.W0010	21/64"	0,38	3/8"-16	0,37	9/32"	1/8"
22032.W0020	1/4"-20	UNC	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
22032.W0021	1/4"-28	UNF	7/16"-14	UNC	0,37	.W0020	25/64"	0,44	7/16"-14	0,43	11/32"	3/16"
22032.W0030	5/16"-18	UNC	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22032.W0031	5/16"-24	UNF	1/2"-13	UNC	0,43	.W0030	29/64"	0,51	1/2"-13	0,50	13/32"	3/16"
22032.W0040	3/8"-16	UNC	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
22032.W0041	3/8"-24	UNF	9/16"-12	UNC	0,50	.W0040	33/64"	0,57	9/16"-12	0,56	15/32"	3/16"
22032.W0050	7/16"-14	UNC	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
22032.W0051	7/16"-20	UNF	5/8"-11	UNC	0,62	.W0050	37/64"	0,63	5/8"-11	0,68	17/32"	3/16"
22032.W0060	1/2"-13	UNC	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22032.W0061	1/2"-20	UNF	3/4"-16	UNF	0,62	.W0060	45/64"	0,76	3/4"-16	0,68	21/32"	3/16"
22032.W0070	9/16"-12	UNC	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
22032.W0071	9/16"-18	UNF	3/4"-16	UNF	0,81	.W0070	45-64"	0,76	3/4"-16	0,94	21/32"	3/16"
22032.W0080	5/8"-11	UNC	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
22032.W0081	5/8"-18	UNF	7/8"-14	UNF	0,87	.W0080	53/64"	0,88	7/8"-14	1,00	25/32"	5/16"
22032.W0090	3/4"-10	UNC	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
22032.W0091	3/4"-16	UNF	1-1/8"-12	UNF	1,12	.W0090	1-1/16"	1,14	1-1/8"-12	1,31	31/32"	5/16"
22032.W0100	7/8"-9	UNC	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22032.W0101	7/8"-14	UNF	1-1/4"-12	UNF	1,25	.W0100	1-3/16"	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22032.W0110	1"-8	UNC	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
22032.W0111	1"-12	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
22032.W0120	1"-14	UNF	1-3/8"-12	UNF	1,37	.W0110	1-5/16"	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
22032.W0130	1-1/8"-7	UNC	1-1/2"-12	UNF	1,62	.W0130	1-7/16"	1,52	1-1/2"-12	1,84	1-11/32"	5/16"
22032.W0131	1-1/8"-12	UNF	1-1/2"-12	UNF	1,62	.W0130	1-7/16"	1,52	1-1/2"-12	1,84	1-11/32"	5/16"



Threaded Insert - Inch heavy duty - carbon steel



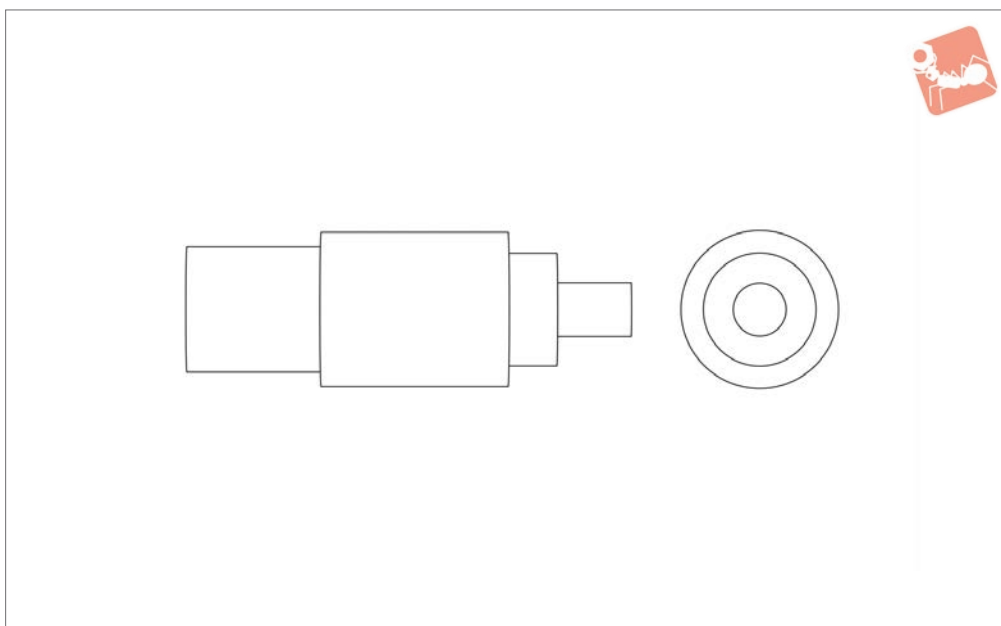
Threaded Inserts

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ tol. 2A	Ext. thread type d ₂	l ₁	Inst. tool ref. 22056	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tol. 2B	Inst. thread depth min.	Removal drill size	Removal drill depth
22032.W0140	1-1/4"-7	UNC	1-5/8"-12	UNF	1,81	.W0140	1-9/16"	1,64	1-5/8"-12	2,06	1-15/32"	5/16"
22032.W0141	1-1/4"-12	UNF	1-5/8"-12	UNF	1,81	.W0140	1-9/16"	1,64	1-5/8"-12	2,06	1-15/32"	5/16"
22032.W0160	1-1/2"-6	UNC	1-7/8"-12	UNF	2,00	.W0160	1-13/16"	1,89	1-7/8"-12	2,28	1-23/32"	5/16"
22032.W0161	1-1/2"-12	UNF	1-7/8"-12	UNF	2,00	.W0160	1-13/16"	1,89	1-7/8"-12	2,28	1-23/32"	5/16"

THREADED INSERTS



22056



Material

Steel, blackened.

Tips

For use with inch heavy duty threaded

inserts 22022 and 22032.

Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of

insert where correct „Inst. tool ref.“ is stated.

Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22056.W0000	8-32	5/16"-18
22056.W0010	10-24/ 10-32	3/8"-16
22056.W0020	1/4"-20/ 1/4"-28	7/16"-14
22056.W0030	5/16"-18/ 5/16"-24	1/2"-13
22056.W0040	3/8"-16/ 3/8"-24	9/16"-12
22056.W0050	7/16"-14/ 7/16"-20	5/8"-11
22056.W0060	1/2"-13/ 1/2"-20	3/4"-16
22056.W0070	9/16"-12/ 9/16"-18	3/4"-16
22056.W0080	5/8"-11/ 5/8"-18	7/8"-14
22056.W0090	3/4"-10/ 3/4"-16	1-1/8"-12
22056.W0100	7/8"-9/ 7/8"-14	1-1/4"-12
22056.W0110	1"-8/ 1"-12/ 1"-14	1-3/8"-12
22056.W0130	1-1/8"-7/ 1-1/8"-12	1-1/2"-12
22056.W0140	1-1/4"-7/ 1-1/4"-12	1-5/8"-12
22056.W0160	1-1/2"-6/ 1-1/2"-12	1-7/8"-12

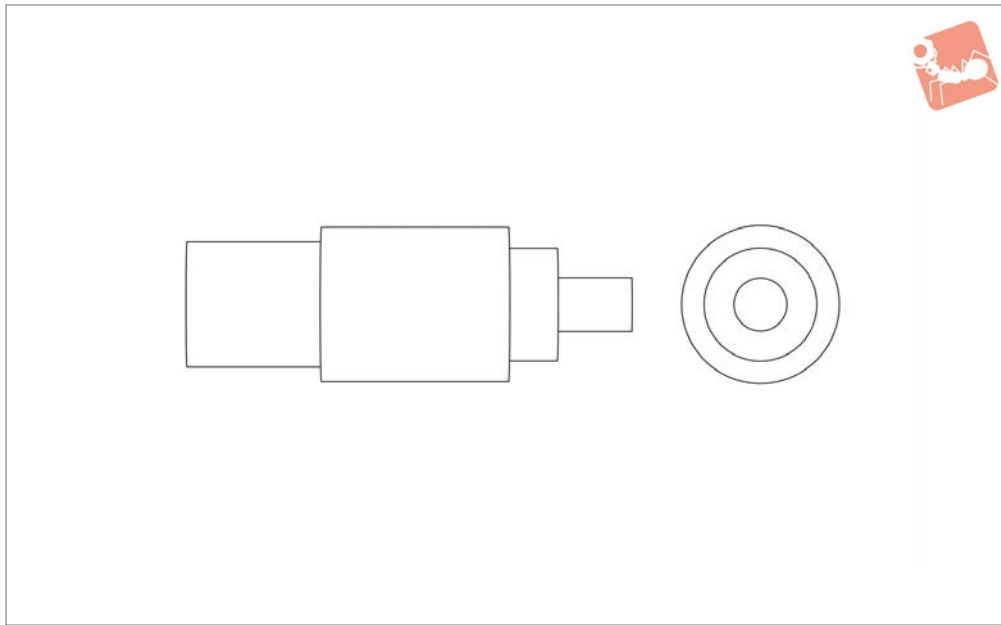


Installation Tool - Metric - Heavy Duty

for threaded inserts 22002 & 22006



Threaded Inserts



22062

THREADED INSERTS

Material

Steel, blackened.

Tips

For use with metric heavy duty threaded

inserts 22002 and 22006.

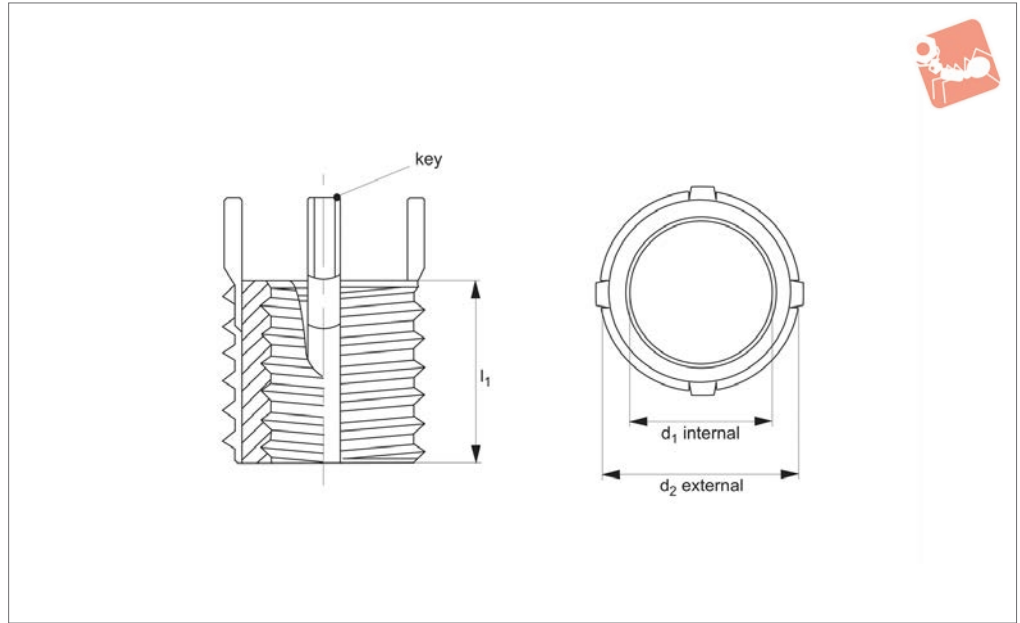
Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of

insert where correct „Inst. tool ref.“ is stated.

Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22062.W0630	M 4x0,70	M 8x1,25
22062.W0640	M 5x0,75	M10x1,30
22062.W0650	M 6x1,00	M12x1,25
22062.W0660	M 8x1,25/ M 8x1,00	M14x1,50
22062.W0670	M10x1,50/ M10x1,25	M16x1,50
22062.W0690	M12x1,75/ M12x1,25	M18x1,50
22062.W0700	M14x2,00/ M14x1,50	M20x1,50
22062.W0710	M16x2,00/ M16x1,50	M22x1,50
22062.W0720	M18x1,50	M24x1,50
22062.W0730	M20x2,50/ M20x1,50	M30x2,00
22062.W0740	M22x1,50	M32x2,00
22062.W0750	M24x3,00/ M24x2,00	M33x2,00



22024



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001"
0,500 and over = +0,005/-0,001"

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

All dimensions in inches.

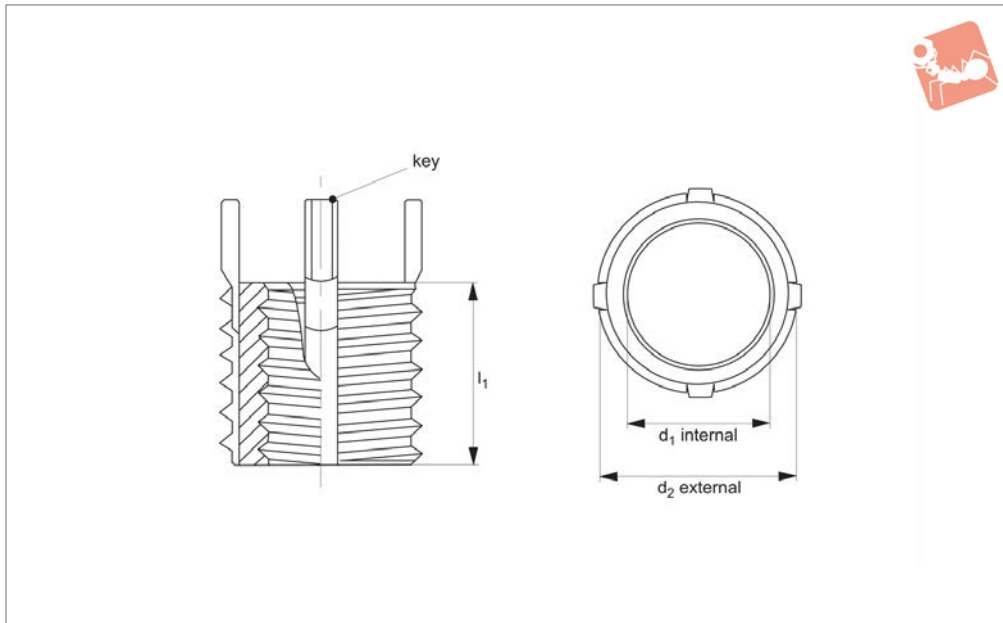
Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ (mod.) class 2A	Ext. thread type d ₂	l ₁	Inst. c'sink dia. +0.010 - 0.000	Inst. tap drill size	Inst. thread depth min.	Inst. thread tap tol. 2B	Inst. tool ref. 22058	Removal drill size	Removal drill depth
22024.W5310	6 - 32	UNC	5/16" - 18	UNC	0,31	0,32	17/64"	0,37	5/16"-18	.W0310	7/32"	1/8"
22024.W5320	8 - 32	UNC	3/8" - 16	UNC	0,31	0,38	21/64"	0,37	3/8"-16	.W0320	9/32"	1/8"
22024.W5330	10 - 24	UNC	7/16" - 14	UNC	0,31	0,44	25/64"	0,37	7/16"-14	.W0330	11/32"	3/16"
22024.W5331	10 - 32	UNF	7/16" - 14	UNC	0,31	0,44	25/64"	0,37	7/16"-14	.W0330	11/32"	3/16"
22024.W5340	1/4" - 20	UNC	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
22024.W5341	1/4" - 28	UNF	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
22024.W5350	5/16" -	UNC	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
22024.W5351	5/16" -	UNF	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
22024.W5360	3/8" - 16	UNC	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
22024.W5361	3/8" - 24	UNF	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
22024.W5370	7/16" -	UNC	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
22024.W5371	7/16" -	UNF	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
22024.W5380	1/2" - 13	UNC	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
22024.W5381	1/2" - 20	UNF	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
22024.W5390	9/16" -	UNC	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
22024.W5391	9/16" -	UNF	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
22024.W5400	5/8" - 11	UNC	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
22024.W5401	5/8" - 18	UNF	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
22024.W5410	3/4" - 10	UNC	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
22024.W5411	3/4" - 16	UNF	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
22024.W5420	7/8" - 9	UNC	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
22024.W5421	7/8" - 14	UNF	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
22024.W5430	1" - 8	UNC	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"
22024.W5431	1" - 12	UNF	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"



Threaded Insert - Inch extra heavy duty - carbon steel



Threaded Inserts



22034

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on internal threads 5/16" and over. Two locking keys on internal

threads smaller than 5/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

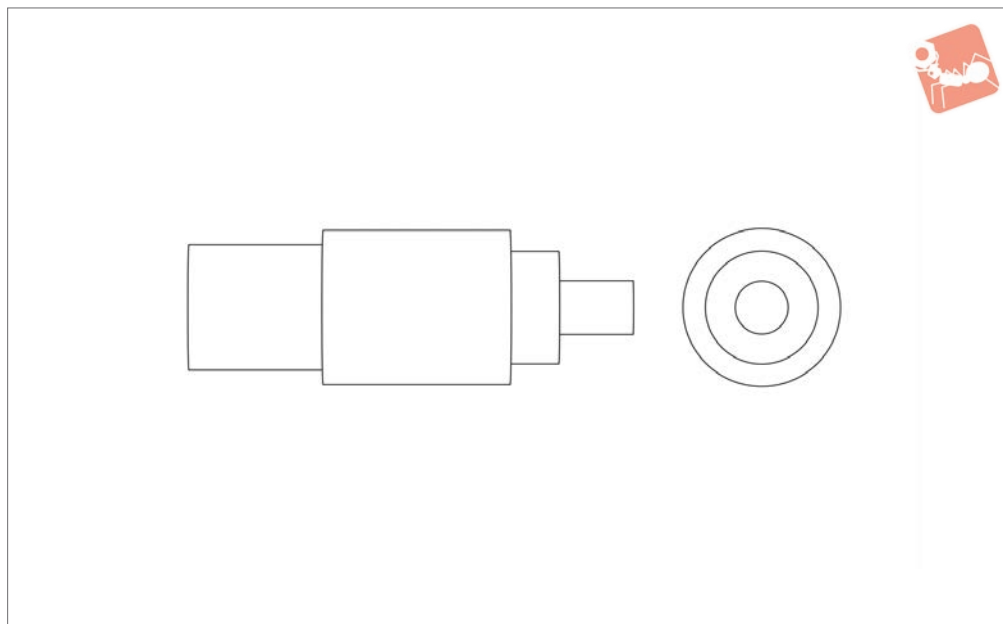
Removal drill size and drill depth as specified in table.

All dimensions in inches.

Order No.	Int. d ₁ tol. 2B	Int. thread type d ₁	Ext. d ₂ (mod.) class 2A	Ext. thread type d ₂	l ₁	Inst. c'sink dia. +0.010 - 0.000	Inst. tap drill size	Inst. thread depth min.	Inst. thread tap tol. 2B	Inst. tool ref. 22058	Removal drill size	Removal drill depth
22034.W0310	6 - 32	UNC	5/16" - 18	UNC	0,31	0,32		0,37	5/16"-18	.W0310	7/32"	1/8"
22034.W0320	8 - 32	UNC	3/8" - 16	UNC	0,31	0,38		0,37	3/8"-16	.W0320	9/32"	1/8"
22034.W0330	10 - 24	UNC	7/16" - 14	UNC	0,31	0,44		0,37	7/16"-14	.W0330	11/32"	3/16"
22034.W0331	10 - 32	UNF	7/16" - 14	UNC	0,31	0,44		0,37	7/16"-14	.W0330	11/32"	3/16"
22034.W0340	1/4" - 20	UNC	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
22034.W0341	1/4" - 28	UNF	1/2" - 13	UNC	0,37	0,51	29/64"	0,43	1/2"-13	.W0340	13/32"	3/16"
22034.W0350	5/16" - 18	UNC	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
22034.W0351	5/16" - 24	UNF	9/16" - 12	UNC	0,43	0,57	33/64"	0,50	9/16"-12	.W0350	15/32"	3/16"
22034.W0360	3/8" - 16	UNC	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
22034.W0361	3/8" - 24	UNF	5/8" - 11	UNC	0,50	0,63	37/64"	0,56	5/8"-11	.W0360	17/32"	3/16"
22034.W0370	7/6" - 14	UNC	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
22034.W0371	7/6" - 20	UNF	3/4" - 16	UNF	0,62	0,76	45/64"	0,68	3/4"-16	.W0370	21/32"	3/16"
22034.W0380	1/2" - 13	UNC	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
22034.W0381	1/2" - 13	UNF	7/8" - 14	UNF	0,68	0,88	53/64"	0,75	7/8"-14	.W0380	25/32"	5/16"
22034.W0390	9/16" - 12	UNC	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
22034.W0391	9/16" - 18	UNF	7/8" - 14	UNF	0,81	0,88	53/64"	0,94	7/8"-14	.W0390	25/32"	5/16"
22034.W0400	5/8" - 11	UNC	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
22034.W0401	5/8" - 18	UNF	1" - 12	UNF	0,87	1,02	15/16"	1,00	1"-12	.W0400	27/32"	5/16"
22034.W0410	3/4" - 10	UNC	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
22034.W0411	3/4" - 16	UNF	1 - 1/4" - 12	UNF	1,12	1,27	1-3/16"	1,31	1-1/4"-12	.W0410	1-3/32"	5/16"
22034.W0420	7/8" - 9	UNC	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
22034.W0421	7/8" - 14	UNF	1 - 3/8" - 12	UNF	1,25	1,39	1-5/16"	1,44	1-3/8"-12	.W0420	1-7/32"	5/16"
22034.W0430	1" - 8	UNC	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"
22034.W0431	1" - 12	UNF	1 - 1/2" - 12	UNF	1,37	1,52	1-7/16"	1,56	1-1/2"-12	.W0430	1-11/32"	5/16"



22058



Material

Steel, blackened.

Tips

For use with metric extra heavy duty

threaded inserts 22024 and 22034.

Select installation tool of corresponding insert internal thread d_1 and external thread d_2 . If in doubt refer to data tables of

solid insert where correct „Inst. tool ref.“ is stated.

Order No.	For insert of internal thread = d_1	For insert of external thread = d_2
22058.W0310	6-32	5/16"-18
22058.W0320	8-32	3/8"-16
22058.W0330	10-24/ 10-32	7/16"-14
22058.W0340	1/4"-20/ 1/4"-28	1/2"-13
22058.W0350	5/16"-18/ 5/16"-24	9/16"-12
22058.W0360	3/8"-16/ 3/8"-24	5/8"-11
22058.W0370	7/16"-14/ 7/16"-20	3/4"-16
22058.W0380	1/2"-13/ 1/2"-20	7/8"-14
22058.W0390	9/16"-12/ 9/16"-18	7/8"-14
22058.W0400	5/8"-11/ 5/8"-18	1"-12
22058.W0410	3/4"-10/ 3/4"-16	1-1/4"-12
22058.W0420	7/8"-9/ 7/8"-14	1-3/8"-12
22058.W0430	1"-8/ 1"-12	1-1/2"-12

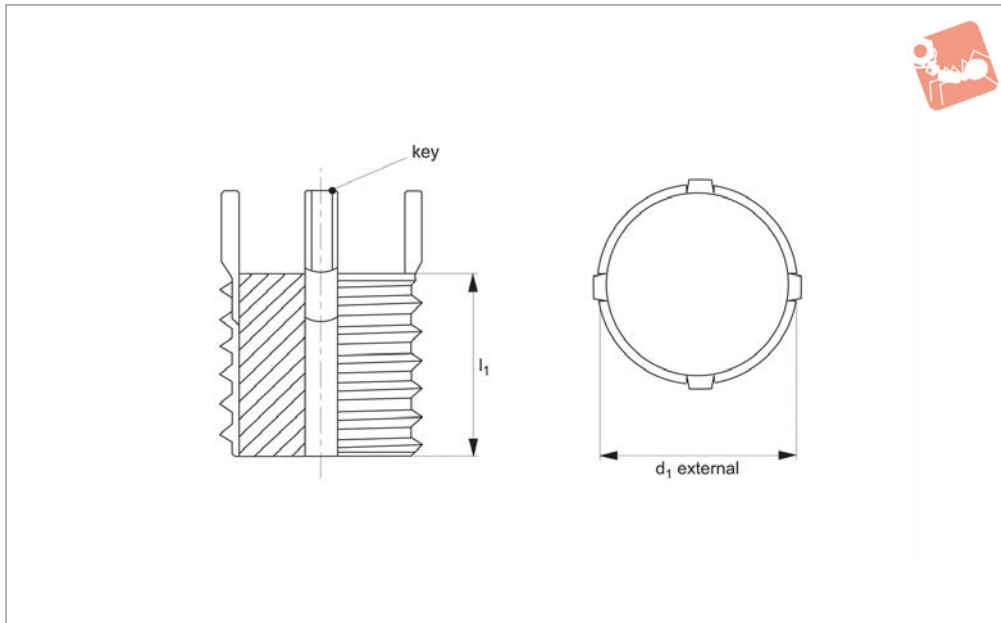


Threaded Insert - Solid - Metric

carbon steel



Threaded Inserts



22040

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,25" unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025".

12,8 and over = +0,13/-0,025".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on external threads M12 and over. Two locking keys on external

threads smaller than M12.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

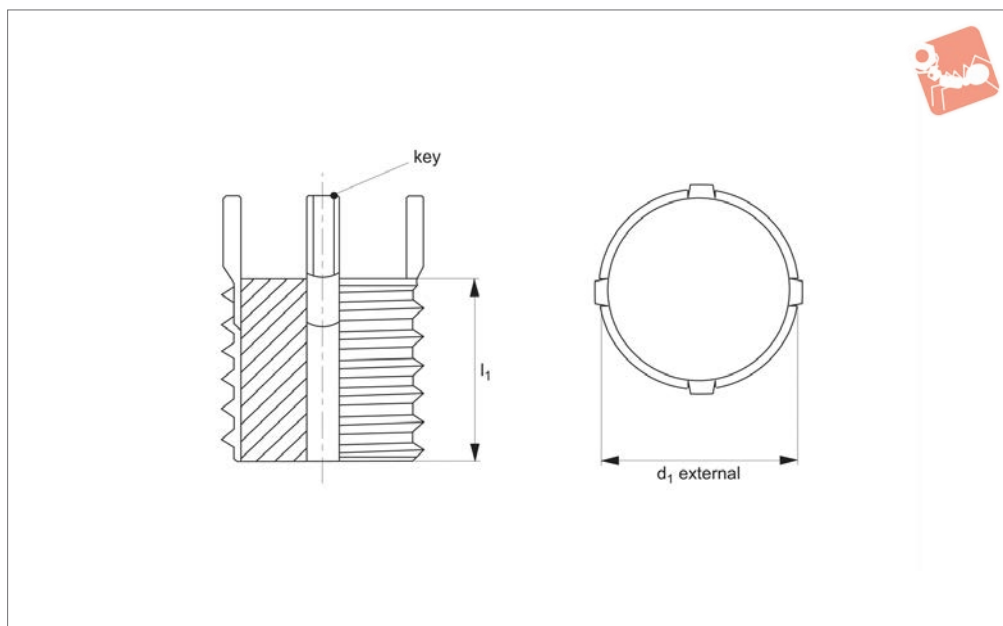
Removal drill size and drill depth as specified in table.

External metric thread allows you to machine your internal thread.

Order No.	d ₁ tol. 6g	Thread type d ₁	l ₁	Inst. tool ref. 22052	Inst. tap drill size	Inst. c'sink dia. +0.25 -0.00	Inst. thread tap tol. 6H	Inst. thread depth min.	Removal drill size	Removal drill depth
22040.W0210	M 8x1,25	Coarse	8	.W0210	6,90	8,3	M 8x1,25	9,5	5,5	4,0
22040.W0220	M10x1,25	Fine	10	.W0220	8,80	10,3	M10x1,25	12,5	7,5	4,8
22040.W0230	M12x1,25	Fine	12	.W0230	10,80	12,3	M12x1,25	14,5	9,5	4,8
22040.W0240	M14x1,50	Fine	14	.W0240	12,80	14,3	M14x1,50	16,5	11,5	4,8
22040.W0250	M16x1,50	Fine	16	.W0250	14,75	16,3	M16x1,50	18,5	13,5	4,8
22040.W0260	M18x1,50	Fine	18	.W0260	16,75	18,3	M18x1,50	20,5	15,5	4,8
22040.W0270	M20x1,50	Fine	20	.W0270	18,75	20,3	M20x1,50	22,5	17,5	4,8
22040.W0280	M22x1,50	Fine	22	.W0280	20,50	22,3	M22x1,50	24,5	17,8	6,4
22040.W0290	M24x1,50	Fine	24	.W0290	22,50	24,3	M24x1,50	26,5	19,8	6,4
22040.W0300	M30x2,00	Fine	30	.W0300	28,00	30,3	M30x2,00	34,5	25,8	6,4
22040.W0310	M32x2,00	Non-Std	32	.W0310	30,00	32,3	M32x2,00	36,5	27,8	6,4
22040.W0320	M33x2,00	Non-Std	33	.W0320	31,00	33,3	M33x2,00	37,5	28,8	6,4



22042



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,25 unless specified.

Tap drill hole tolerances:

6,9 to 10,8 = +0,10/-0,025.

12,8 and over = +0,13/-0,025.

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on external threads M12 and over. Two locking keys on external

threads smaller than M12.

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

External metric thread allows you to machine your internal thread.

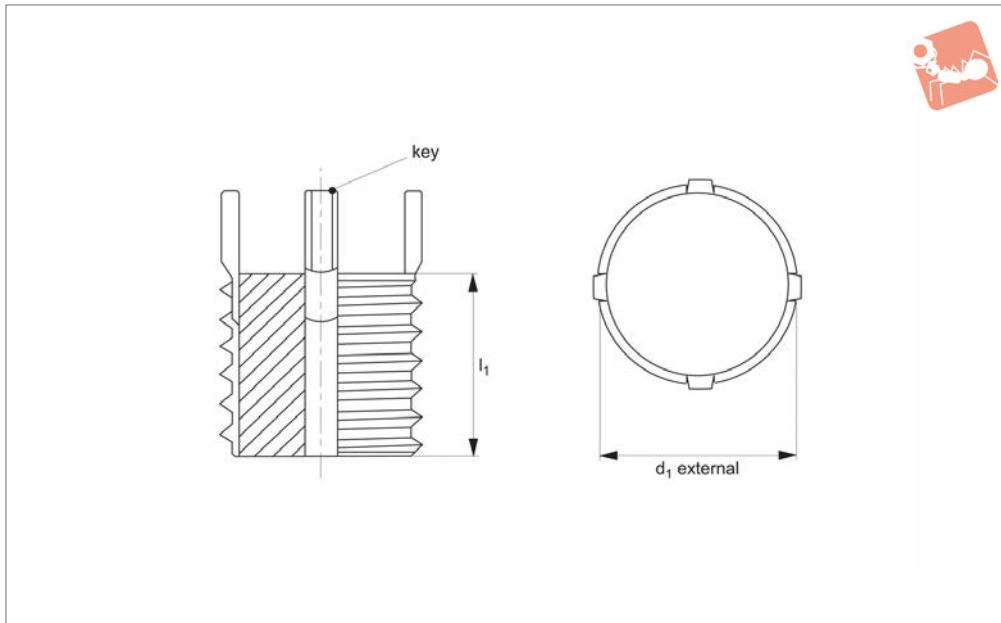
Order No.	d ₁	Thread type d ₁	l ₁	Inst. tool ref. 22052	Inst. tap drill size	Inst. c'sink dia.	Inst. thread tap	Inst. thread tap depth	Removal drill size	Removal drill depth
22042.W0210	M 8x1,2 5	Coarse	8	.W0210	6.9	8.3	M 8x1,25	9.5	5.50	4.0
22042.W0220	M10x 1,25	Fine	10	.W0220	8.8	10.3	M10x1,25	12.5	7.50	4.8
22042.W0230	M12x 1,25	Fine	12	.W0230	10.8	12.3	M12x1,25	14.5	9.50	4.8
22042.W0240	M14x 1,50	Fine	14	.W0240	12.8	14.3	M14x1,50	16.5	11.50	4.8
22042.W0250	M16x 1,50	Fine	16	.W0250	14.8	16.3	M16x1,50	18.5	13.50	4.8
22042.W0260	M18x 1,50	Fine	18	.W0260	16.8	18.3	M18x1,50	20.5	15.50	4.8
22042.W0270	M20x 1,50	Fine	20	.W0270	18.8	20.3	M20x1,50	22.5	17.50	4.8
22042.W0280	M22x 1,50	Fine	22	.W0280	20.5	22.3	M22x1,50	24.5	17.75	6.4
22042.W0290	M24x 1,50	Fine	24	.W0290	22.5	24.3	M24x1,50	26.5	19.75	6.4
22042.W0300	M30x 2,00	Non-Std	30	.W0300	28.0	30.3	M30x2,00	34.5	25.75	6.4
22042.W0310	M32x 2,00	Non-Std	32	.W0310	30.0	32.3	M32x2,00	36.5	27.75	6.4
22042.W0320	M33x 2,00	Non-Std	33	.W0320	31.0	33.3	M33x2,00	37.5	28.75	6.4



Threaded Insert - Solid - Inch carbon steel



Threaded Inserts



22044

THREADED INSERTS

Material

Inserts: carbon steel (C1215) or equivalent. Zinc phosphate.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on external threads

7/16" and over. Two locking keys on

external threads smaller than 7/16".

Installation (Inst.) drill size, countersink, thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

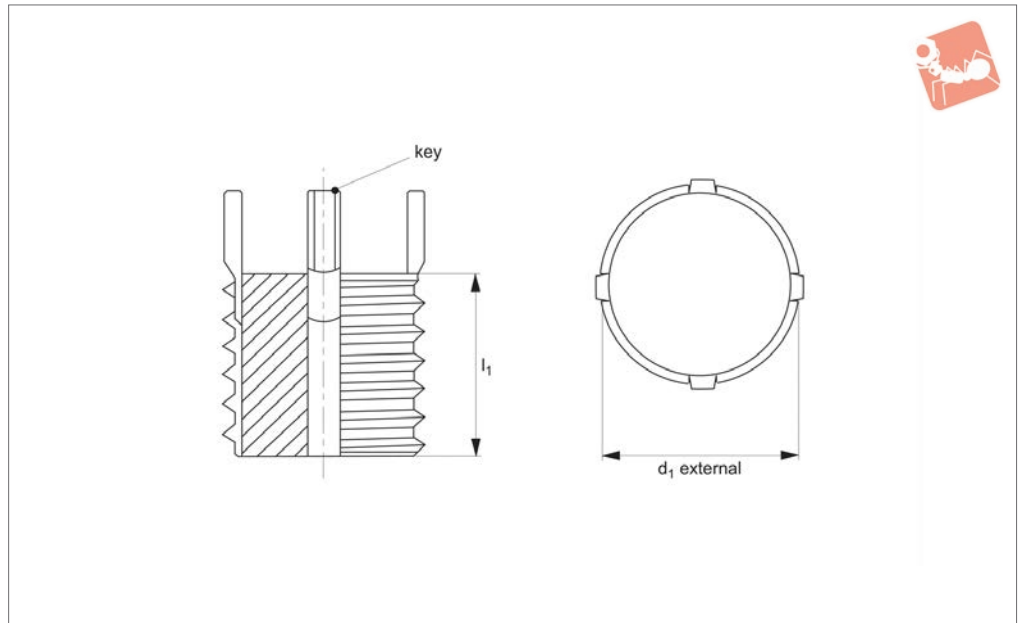
External inch thread allows you to machine your internal thread.

All dimensions in inches.

Order No.	d ₁ (mod.) tol. 2A	Thread type d ₁	l ₁	Inst. tool ref. 22050	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread tap depth min.	Removal drill size	Removal drill depth
22044.W0010	5/16"-18	UNC	0,31	.W0010	0,27	0,32	5/16"-18	0,37	7/32"	1/8"
22044.W0020	3/8"-16	UNC	0,31	.W0020	0,33	0,38	3/8"-16	0,37	9/32"	1/8"
22044.W0030	7/16"-14	UNC	0,37	.W0030	0,40	0,44	7/16"-14	0,43	11/32"	3/16"
22044.W0040	1/2"-13	UNC	0,43	.W0040	0,45	0,51	1/2"-13	0,50	13/32"	3/16"
22044.W0050	9/16"-12	UNC	0,50	.W0050	0,52	0,57	9/16"-12	0,56	15/32"	3/16"
22044.W0060	5/8"-11	UNC	0,62	.W0060	0,58	0,63	5/8"-11	0,68	17/32"	3/16"
22044.W0070	3/4"-16	UNF	0,68	.W0070	0,70	0,76	3/4"-16	0,75	21/32"	3/16"
22044.W0080	7/8"-14	UNF	0,87	.W0080	0,83	0,88	7/8"-14	1,00	25/32"	5/16"
22044.W0090	1"-12	UNF	0,87	.W0090	0,94	1,02	1"-12	1,00	27/32"	5/16"
22044.W0100	1-1/8"-12	UNF	1,12	.W0100	1,06	1,14	1-1/8"-12	1,31	31/32"	5/16"
22044.W0110	1-1/4"-12	UNF	1,25	.W0110	1,19	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22044.W0120	1-3/8"-12	UNF	1,37	.W0120	1,31	1,39	1-3/8"-12	1,56	1-7/32"	5/16"



22046



Material

Inserts: stainless steel (AISI 303) or equivalent. Passivated.

Keys: stainless steel (302 CRES) or equivalent. Passivated.

Technical Notes

General tolerances:

± 0,010" unless specified.

Tap drill hole tolerances:

0,234 to 0,500 = +0,004/-0,001".

0,500 and over = +0,005/-0,001".

Tips

Order installation tool separately, as identified by „Inst. tool ref.“ in table.

Important Notes

Four locking keys on external threads 7/16" and over. Two locking keys on external threads smaller than 7/16".

Installation (Inst.) drill size, countersink,

thread tap and thread depth as specified in table.

Removal drill size and drill depth as specified in table.

External inch thread allows you to machine your internal thread.

*Unified special pitch thread.

All dimensions in inches.

Order No.	d ₁ (mod.) tol. 2A	Thread type d ₁	l ₁	Inst. tool ref. 22050	Inst. tap drill size	Inst. c'sink dia. +0.010 - 0.000	Inst. thread tap tol. 2B	Inst. thread tap depth min.	Removal drill size	Removal drill depth
22046.W0010	5/16"-18	UNC	0,31	.W0010	0,272	0,32	5/16"-18	0,37	7/32"	1/8"
22046.W0020	3/8"-16	UNC	0,31	.W0020	0,332	0,38	3/8"-16	0,37	9/32"	1/8"
22046.W0030	7/16"-14	UNC	0,37	.W0030	0,397	0,44	7/16"-14	0,43	11/32"	3/16"
22046.W0040	1/2"-13	UNC	0,43	.W0040	0,453	0,51	1/2"-13	0,50	13/32"	3/16"
22046.W0050	9/16"-12	UNC	0,50	.W0050	0,516	0,57	9/16"-12	0,56	15/32"	3/16"
22046.W0060	5/8"-11	UNC	0,62	.W0060	0,578	0,63	5/8"-11	0,68	17/32"	3/16"
22046.W0065	11/16"-11*	UNS	0,68	.W0065	0,641	0,70	11/16"-11*	0,75	19/32"	3/16"
22046.W0070	3/4"-16	UNF	0,68	.W0070	0,703	0,76	3/4"-16	0,75	21/32"	3/16"
22046.W0075	13/16"-16	UNF	0,81	.W0075	0,766	0,82	13/16"-16	0,94	23/32"	3/16"
22046.W0080	7/8"-14	UNF	0,87	.W0080	0,828	0,88	7/8"-14	1,00	25/32"	5/16"
22046.W0090	1"-12	UNF	0,87	.W0090	0,937	1,02	1"-12	1,00	27/32"	5/16"
22046.W0100	1-1/8"-12	UNF	1,12	.W0100	1,062	1,14	1-1/8"-12	1,31	31/32"	5/16"
22046.W0110	1-1/4"-12	UNF	1,25	.W0110	1,187	1,27	1-1/4"-12	1,44	1-3/32"	5/16"
22046.W0120	1-3/8"-12	UNF	1,37	.W0120	1,312	1,39	1-3/8"-12	1,56	1-7/32"	5/16"
22046.W0130	11/16"-11*	UNS	0,68	.W0065	0,641	0,70	11/16"-11*	0,75	19/32"	5/16"
22046.W0140	13/16"-16	UNF	0,81	.W0075	0,766	0,82	13/16"-16	0,94	23/32"	5/16"

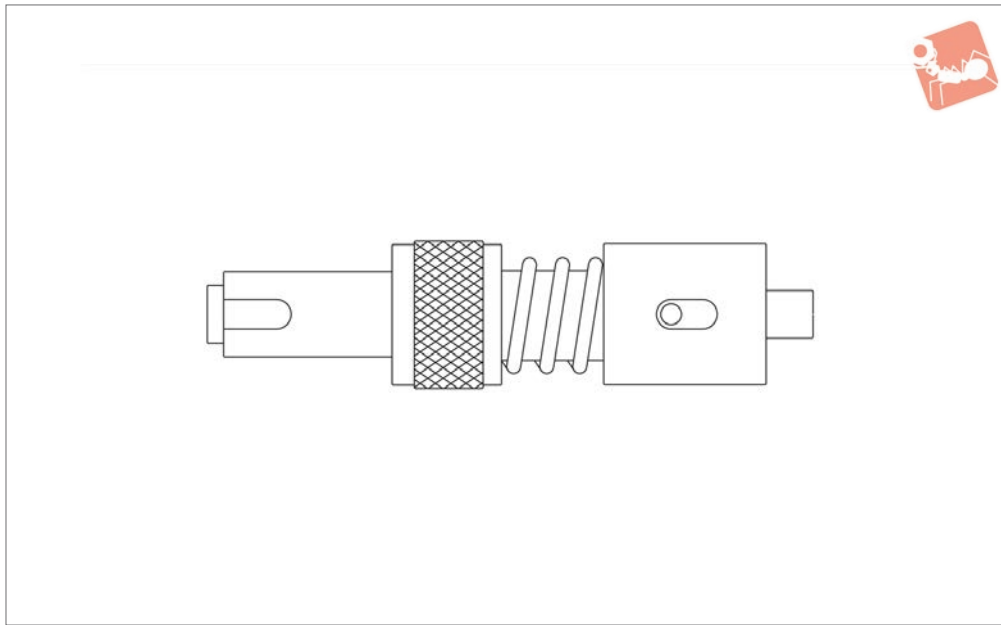


Installation Tool - Solid - Inch

for threaded inserts 22044 & 22046



Threaded Inserts



22050

THREADED INSERTS

Material

Steel, blackened.

Tips

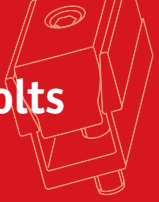
For use with inch solid inserts 22044 and

22046.

Select installation tool of corresponding insert external thread d_1 . If in doubt refer to data tables of insert where correct „Inst.

tool ref.“ is stated.

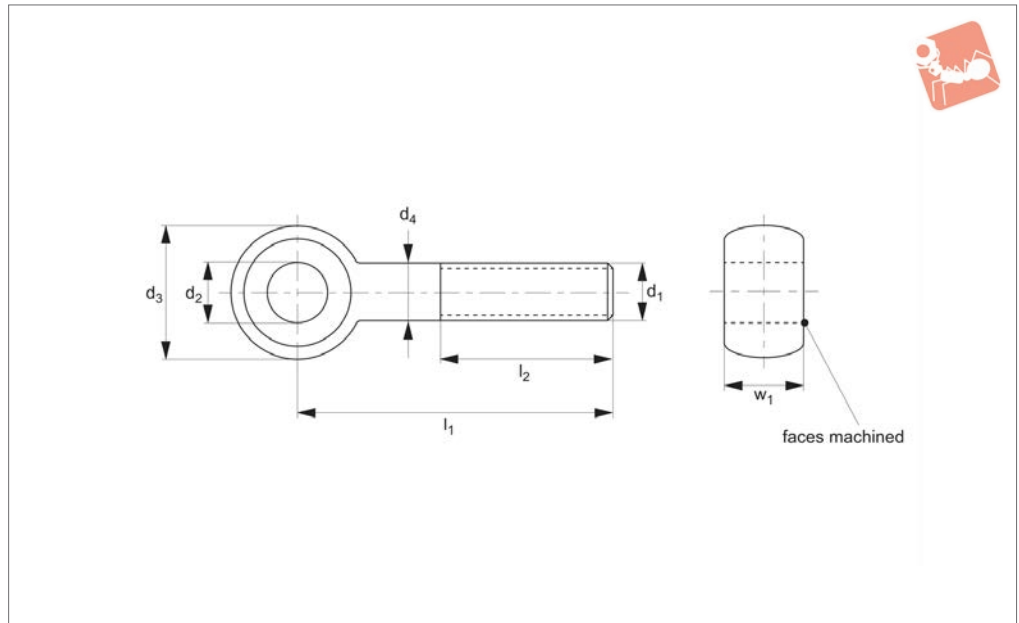
Order No.	For insert of external thread = d_1	Thread type d_1
22050.W0010	5/16"-18	UNC
22050.W0020	3/8"-16	UNC
22050.W0030	7/16"-14	UNC
22050.W0040	1/2"-13	UNC
22050.W0050	9/16"-12	UNC
22050.W0060	5/8"-11	UNC
22050.W0065	11/16"-11NS	UNF
22050.W0070	3/4"-16	UNF
22050.W0075	13/16"-16	UNF
22050.W0080	7/8"-14	UNF
22050.W0090	1"-12	UNF
22050.W0100	1-1/8"-12	UNF
22050.W0110	1-1/4"-12	UNF
22050.W0120	1-3/8"-12	UNF



SWING BOLTS



18820



Material

Steel, heat-treated steel, blackened, quality thread 8.8.
 Rolled thread, shaft \varnothing = roll \varnothing , faces machined.

Technical Notes

Produced to DIN 444B.

Important Notes

These parts offer a high precision bore d_2 to tolerance H7, with faces w_1 machined flat.

For similar DIN 444 swing bolts for a standard tolerance see our part 18822.

Order No.	d_1	l_1	d_2 tol. H7	d_3	l_2	d_4	w_1	Weight g
18820.W0060	M 5	50	5	12	32	5	6	10
18820.W0061	M 6	50	6	14	32	6	7	14
18820.W0062	M 6	75	6	14	32	6	7	19
18820.W0081	M 8	40	8	18	22	8	9	22
18820.W0084	M 8	60	8	18	22	8	9	28
18820.W0103	M10	50	10	20	26	10	12	38
18820.W0106	M10	75	10	20	26	10	12	50
18820.W0108	M10	100	10	20	26	10	12	62
18820.W0122	M12	60	12	25	30	12	14	70
18820.W0125	M12	80	12	25	30	12	14	84
18820.W0128	M12	120	12	25	30	12	14	113
18820.W0163	M16	80	16	32	38	16	17	153
18820.W0168	M16	150	16	32	44	16	17	245
18820.W0201	M20	100	18	40	63	20	22	305
18820.W0202	M20	130	18	40	63	20	22	370
18820.W0203	M20	160	18	40	63	20	22	440



Swing Bolts - Overview



Swing Bolts - High Tolerance

18820

- Form B - DIN 444.
- Heat-treated steel, quality 8.8, blackened.
- Rolled thread, shaft \emptyset = thread \emptyset , faces machined.
- These parts offer a high precision bore d_2 to tolerance H7, with faces 'w₁' machined flat.



Swing Bolts - Standard Tolerance

18822

- Form B, DIN 444.
- Heat-treated steel, tempered, quality 8.8, black
- These parts have a bore d_2 with a standard tolerance H9 (faces 'w₁' are not machined).



Stainless Swing Bolts - High Tolerance

18830

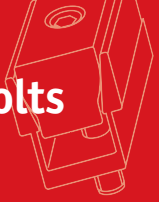
- DIN 444.
- Stainless steel 1.4305 (AISI 304). Turned, thread rolled. Matt shot blasted.
- These parts offer a high precision bore d_2 to tolerance H7, with faces 'w₁' machined flat.



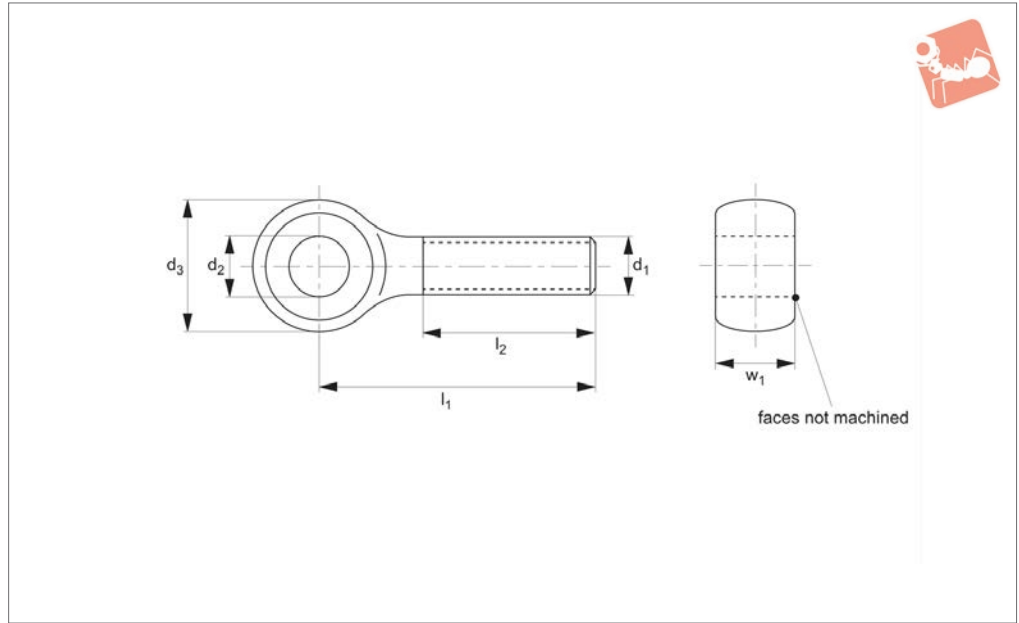
Stainless Swing Bolts - Standard Tolerance

18832

- DIN 444.
- Stainless steel 1.4301.
- These parts have a bore d_2 with a standard tolerance H9 (faces 'w₁' are not machined).



18822



Material

Steel, heat-treated and tempered, quality 8.8, black.

Technical Notes

DIN 444.

Important Notes

These parts have a bore d_2 standard tolerance H9 (faces are not machined).

For similar parts to DIN 444 with high tolerance see our part 18820.

Order No.	d_1	l_1	d_2 tol. h9	d_3	l_2	w_1	Weight g
18822.W0202	M 5	25	5	12	16	6	5.6
18822.W0203	M 5	30	5	12	16	6	6.4
18822.W0204	M 5	35	5	12	16	6	7.1
18822.W0205	M 5	40	5	12	16	6	7.9
18822.W0212	M 6	30	6	14	18	7	9.5
18822.W0214	M 6	40	6	14	18	7	12.0
18822.W0216	M 6	50	6	14	18	7	14.0
18822.W0218	M 6	60	6	14	18	7	16.0
18822.W0222	M 6	80	6	14	18	7	20.0
18822.W0232	M 8	40	8	18	22	9	22.0
18822.W0234	M 8	50	8	18	22	9	25.0
18822.W0236	M 8	60	8	18	22	9	29.0
18822.W0240	M 8	80	8	18	22	9	37.0
18822.W0244	M 8	100	8	18	22	9	44.0
18822.W0252	M10	50	10	20	26	12	37.0
18822.W0254	M10	60	10	20	26	12	43.0
18822.W0257	M10	75	10	20	26	12	52.0
18822.W0262	M10	100	10	20	26	12	67.0
18822.W0266	M10	120	10	20	26	12	72.0
18822.W0272	M12	50	12	25	30	14	59.0
18822.W0274	M12	60	12	25	30	14	68.0
18822.W0278	M12	80	12	25	30	14	85.0
18822.W0282	M12	100	12	25	30	14	102.0
18822.W0286	M12	120	12	25	30	14	119.0
18822.W0292	M16	60	16	32	38	17	128.0
18822.W0294	M16	80	16	32	38	17	158.0
18822.W0298	M16	100	16	32	38	17	190.0
18822.W0302	M16	120	16	32	38	17	220.0
18822.W0308	M16	150	16	32	44	17	265.0
18822.W0312	M20	100	18	40	46	22	329.0
18822.W0316	M20	120	18	40	46	22	371.0
18822.W0324	M20	160	18	40	52	22	466.0



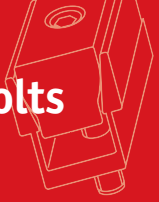
Swing Bolts - Standard Tolerance form B



Swing Bolts

Order No.	d ₁	l ₁	d ₂ tol. h9	d ₃	l ₂	w ₁	Weight g
18822.W0332	M20	200	18	40	52	22	562.0
18822.W0342	M24	100	22	45	54	25	442.0
18822.W0346	M24	120	22	45	54	25	512.0
18822.W0354	M24	160	22	45	60	25	649.0
18822.W0362	M24	200	22	45	60	25	787.0

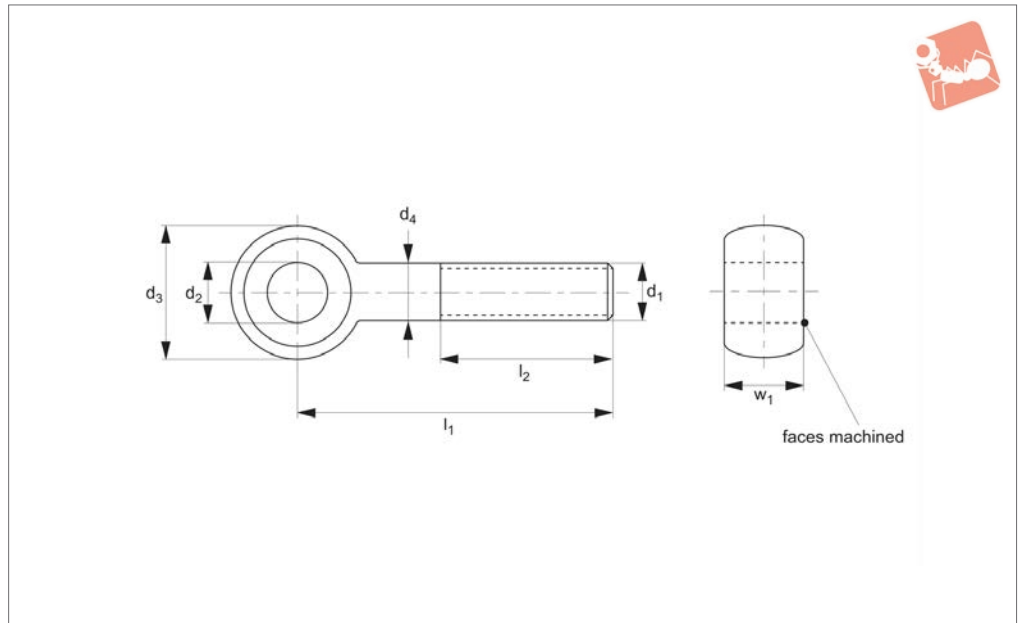
SWING BOLTS



SWING BOLTS



18830



Material

Turned, thread rolled. Matt shot blasted.

Technical Notes

Produced to DIN 444.

Stainless steel 1.4305 (AISI 304).

Important Notes

These parts offer a high precision bore d_2 to tolerance H7, with faces w_1 machined flat.

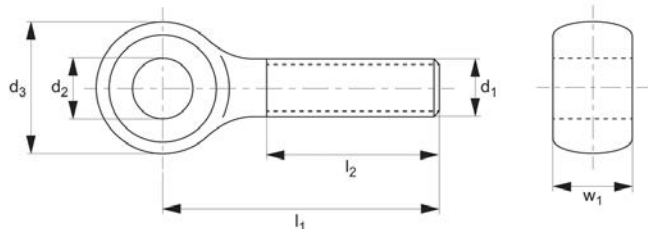
For similar DIN 444 swing bolts to a standard tolerance see our part 18832.

Order No.	d_1	l_1	d_2 tol. H7	d_3	l_2	d_4	w_1 -0.15	Weight g
18830.W0051	M 5	50	5	12	32	5	6	10
18830.W0052	M 5	75	5	12	32	5	6	20
18830.W0061	M 6	50	6	14	32	6	7	14
18830.W0062	M 6	75	6	14	32	6	7	19
18830.W0081	M 8	50	8	18	32	8	9	26
18830.W0082	M 8	75	8	18	32	8	9	36
18830.W0101	M10	50	10	20	40	10	12	38
18830.W0102	M10	75	10	20	40	10	12	53
18830.W0103	M10	100	10	20	40	10	12	60
18830.W0121	M12	75	12	25	40	12	14	83
18830.W0122	M12	100	12	25	40	12	14	105
18830.W0123	M12	130	12	25	40	12	14	132
18830.W0161	M16	75	16	32	50	16	17	146
18830.W0162	M16	100	16	32	50	16	17	183
18830.W0163	M16	130	16	32	50	16	17	220
18830.W0164	M20	100	18	40	63	20	22	322

Stainless Swing Bolts

standard tolerance

Swing Bolts



18832

SWING BOLTS

Material

Stainless steel 1.4301.

Technical Notes

DIN 444.

Important Notes

These parts have a bore d_2 to standard tolerance H9 (faces w_1 are not machined).

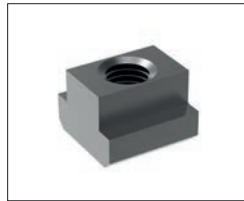
For similar parts to DIN 444 with high tolerance see our part 18830.

Order No.	d_1	l_1	d_2 tol. h9	d_3	l_2	w_1	Weight g
18832.W0402	M 5	25	5	12	16	6	5.6
18832.W0403	M 5	30	5	12	16	6	6.4
18832.W0404	M 5	35	5	12	16	6	7.1
18832.W0405	M 5	40	5	12	16	6	7.9
18832.W0412	M 6	30	6	14	18	7	9.5
18832.W0414	M 6	40	6	14	18	7	12.0
18832.W0416	M 6	50	6	14	18	7	14.0
18832.W0418	M 6	60	6	14	18	7	16.0
18832.W0422	M 6	80	6	14	18	7	20.0
18832.W0432	M 8	40	8	18	22	9	22.0
18832.W0434	M 8	50	8	18	22	9	25.0
18832.W0436	M 8	60	8	18	22	9	29.0
18832.W0440	M 8	80	8	18	22	9	37.0
18832.W0444	M 8	100	8	18	22	9	44.0
18832.W0452	M10	50	10	20	26	12	37.0
18832.W0454	M10	60	10	20	26	12	43.0
18832.W0457	M10	75	10	20	26	12	52.0
18832.W0462	M10	100	10	20	26	12	67.0
18832.W0466	M10	120	10	20	26	12	72.0
18832.W0472	M12	50	12	25	30	14	59.0
18832.W0474	M12	60	12	25	30	14	68.0
18832.W0478	M12	80	12	25	30	14	85.0
18832.W0482	M12	100	12	25	30	14	102.0
18832.W0486	M12	120	12	25	30	14	119.0
18832.W0502	M16	120	16	32	38	17	220.0
18832.W0508	M16	150	16	32	44	17	265.0
18832.W0512	M20	100	18	40	46	22	329.0
18832.W0516	M20	120	18	40	46	22	371.0
18832.W0524	M20	160	18	40	52	22	466.0
18832.W0532	M20	200	18	40	52	22	562.0
18832.W0542	M24	100	22	45	54	25	442.0
18832.W0546	M24	120	22	45	54	25	512.0
18832.W0554	M24	160	22	45	60	25	649.0
18832.W0562	M24	200	22	45	60	25	787.0

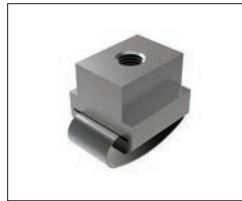


Nuts

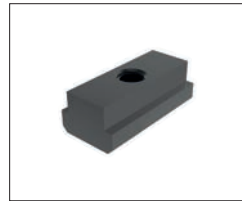
Available in heat treated steel, unless stated otherwise.



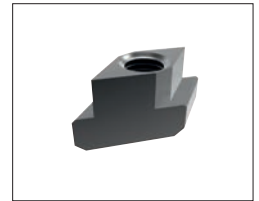
24000 T-Nut, Strength Class 10 DIN 508.



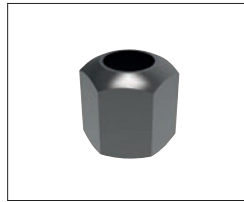
24010 T-Nut with Anti-Slip Device.



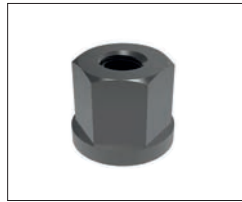
24100 Extended T-Nut. Strength Class 10.



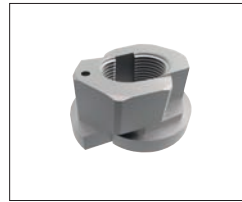
24120 Rhombus T-Nuts



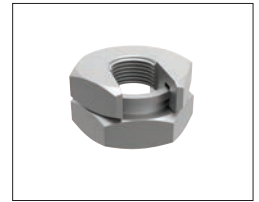
24300 Fixture Nuts. Strength Class 10 - DIN 6330B



24400 Collar Nuts, DIN 6331



24502 Fast Nut - With Collar Rapid Assembly Nut



24520 - Steel Slip-On Lock Nuts - Rapid Assembly Nut.



24600 Extension Nuts Strength Class 10.



24620 Swivel Nuts, Conical Seat

Washers

Available in a range of steel types - see product for details.



25000 - Hardened Steel - Plain Washers. DIN 6340.



25100 - Case Hardened Steel - Spherical Seat Washers. Type C - DIN 6319C.



25400 - Case Hardened Steel - Dished Washers, Type D - DIN 6319D.



25700 - Tempered Steel - Dished Washers, Type G - DIN 6319G.

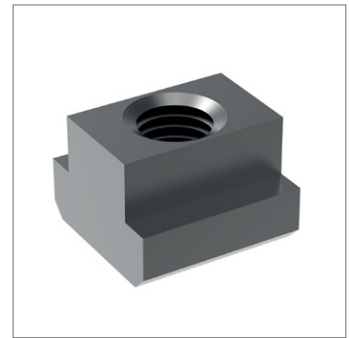
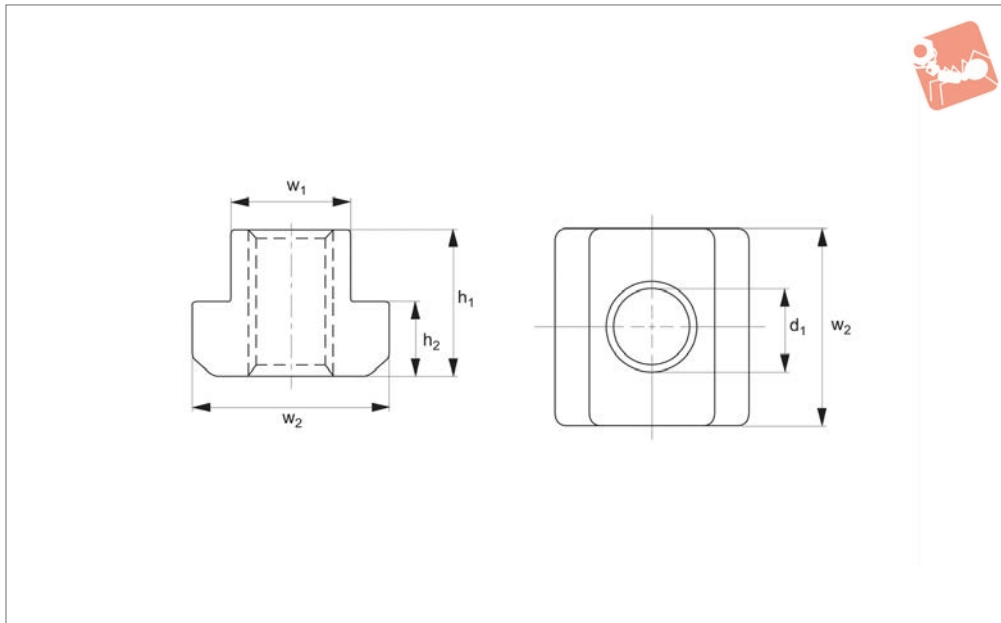


25900 - Stainless Steel Compact Spherical Washer, Conical Seat, similar to DIN6319



T-Nuts

steel - strength class 10



24000

T-NUTS & T-BOLTS

Material

Steel, heat-treated, to tensile strength class 10.

Technical Notes

T-nuts to DIN 508.

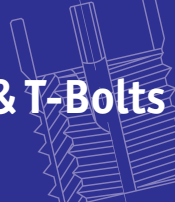
Further T-nut sizes and qualities on request.

Please note T-nuts are square, length and width are both equal to dimension w_2 .

Important Notes

Full load capacity of T-nut can only be achieved if 100% of T-nut's thread is in use.

Order No.	$d_1 \times$ T-Slot	w_1	w_2	h_1	h_2	Testing force to DIN 508 kN	Weight g
24000.W0041	M 4x5	4.6	9	6.5	3	7.0	2
24000.W0061	M 5x6	5.7	10	8.0	4	11.4	3
24000.W0081	M 6x8	7.7	13	10.0	6	16.0	8
24000.W0091	M 6x10	9.6	15	12.0	6	16.0	14
24000.W0101	M 8x10	9.7	15	12.0	6	29.0	13
24000.W0121	M 8x12	11.7	18	14.0	7	29.0	23
24000.W0122	M10x12	11.7	18	14.0	7	46.0	20
24000.W0141	M 8x14	13.7	22	16.0	8	29.0	41
24000.W0142	M10x14	13.7	22	16.0	8	46.0	37
24000.W0143	M12x14	13.7	22	16.0	8	67.0	34
24000.W0161	M 8x16	15.7	25	18.0	9	29.0	50
24000.W0162	M10x16	15.7	25	18.0	9	46.0	60
24000.W0163	M12x16	15.7	25	18.0	9	67.0	54
24000.W0164	M14x16	15.7	25	18.0	9	-	49
24000.W0181	M 8x18	17.7	28	20.0	10	29.0	91
24000.W0182	M10x18	17.7	28	20.0	10	46.0	87
24000.W0183	M12x18	17.7	28	20.0	10	67.0	82
24000.W0184	M14x18	17.7	28	20.0	10	-	74
24000.W0185	M16x18	17.7	28	20.0	10	128.0	68
24000.W0200	M12x20	19.6	32	24.0	12	67.0	107
24000.W0201	M16x20	19.7	32	24.0	12	128.0	110
24000.W0202	M18x20	19.7	32	24.0	12	-	108
24000.W0220	M12x22	21.6	35	28.0	14	67.0	189
24000.W0221	M16x22	21.7	35	28.0	14	128.0	176
24000.W0222	M18x22	21.7	35	28.0	14	-	163
24000.W0223	M20x22	21.7	35	28.0	14	196.0	155
24000.W0241	M16x24	23.7	40	32.0	16	128.0	260
24000.W0242	M20x24	23.7	40	32.0	16	196.0	235
24000.W0243	M22x24	23.7	40	32.0	16	-	220
24000.W0281	M16x28	27.7	44	36.0	18	128.0	383
24000.W0282	M20x28	27.7	44	36.0	18	196.0	355
24000.W0283	M22x28	27.7	44	36.0	18	-	340

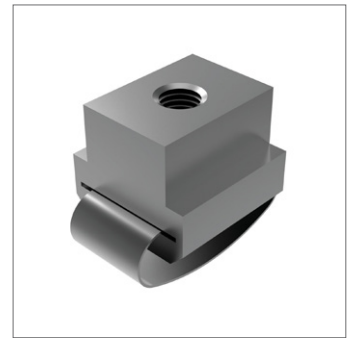
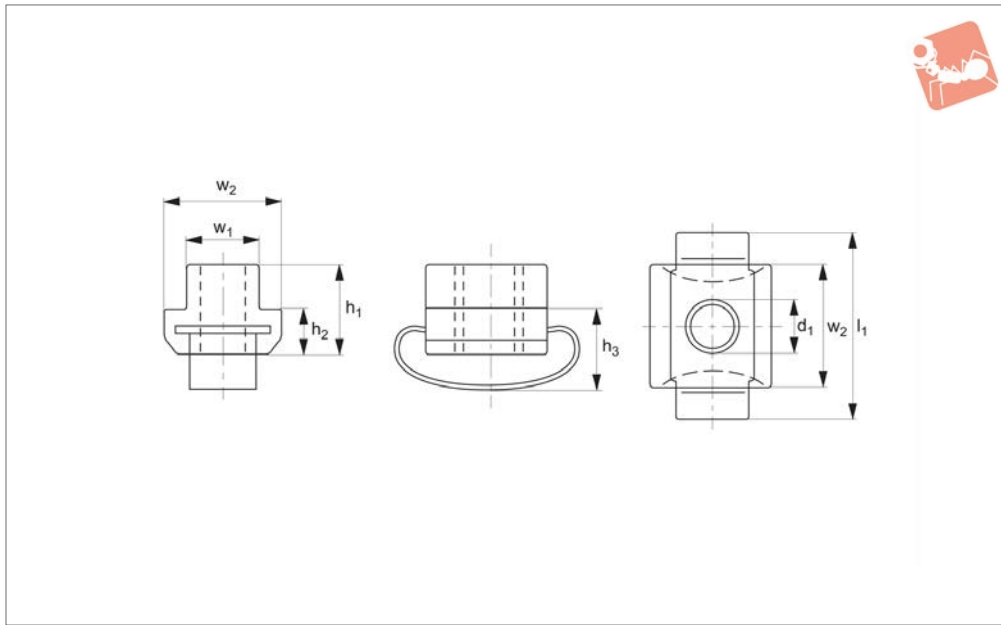


Order No.	d ₁ x T-Slot	w ₁	w ₂	h ₁	h ₂	Testing force to DIN 508 kN	Weight g
24000.W0284	M24x28	27.7	44	36.0	18	282.0	322
24000.W0301	M24x30	29.7	48	38.0	19	-	440
24000.W0321	M27x32	31.6	50	40.0	20	-	460
24000.W0361	M24x36	35.6	54	44.0	22	282.0	700
24000.W0362	M30x36	35.6	54	44.0	22	448.0	590
24000.W0421	M30x42	41.6	65	52.0	26	-	1150
24000.W0422	M36x42	41.6	65	52.0	26	653.0	1010
24000.W0481	M42x48	47.6	75	60.0	30	653.0	1600
24000.W0541	M48x54	53.6	85	70.0	34	653.0	2300



T-Nuts with anti-slip device

T-Nuts & T-Bolts



24010

T-NUTS & T-BOLTS

Material

Steel, heat-treated, quality 10, black.
Spring element: stainless steel.

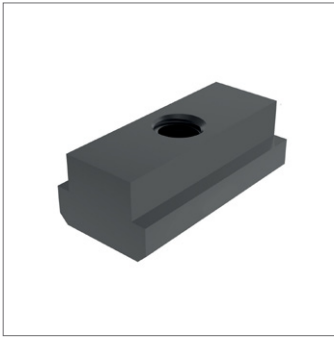
Technical Notes

The spring element prevents horizontal and vertical slipping of T-nut. Please note

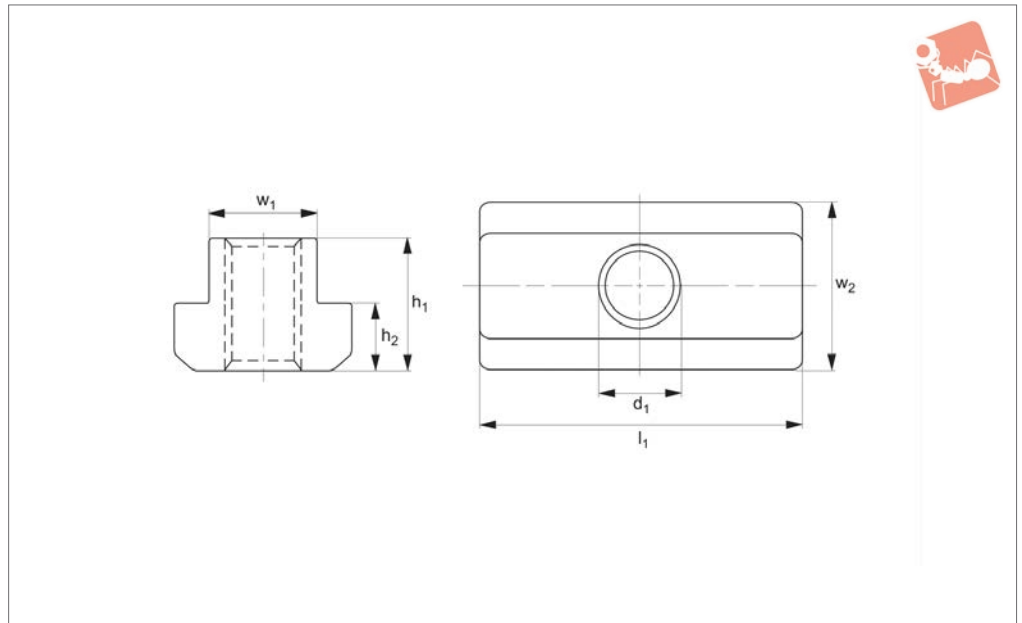
T-nuts are square, length and width are both equal to dimension w_2 .

Order No.	d_1 x T-Slot	w_1	w_2	h_1	h_2	h_3	l_1	Weight g
24010.W0121	M 8x12	11.7	18	14	7	12.5	31	24
24010.W0122	M10x12	11.7	18	14	7	12.5	31	21
24010.W0141	M 8x14	13.7	22	16	8	13.5	33	42
24010.W0142	M10x14	13.7	22	16	8	13.5	33	38
24010.W0143	M12x14	13.7	22	16	8	13.5	33	34
24010.W0161	M 8x16	15.7	25	18	9	15.5	42	63
24010.W0162	M10x16	15.7	25	18	9	15.5	42	60
24010.W0182	M10x18	17.7	28	20	10	17.5	43	87
24010.W0185	M16x18	17.7	28	20	10	17.5	43	70
24010.W0223	M20x22	21.7	35	28	14	21.5	56	153





24100



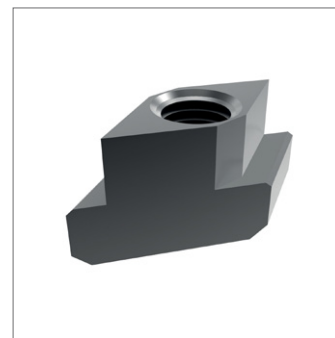
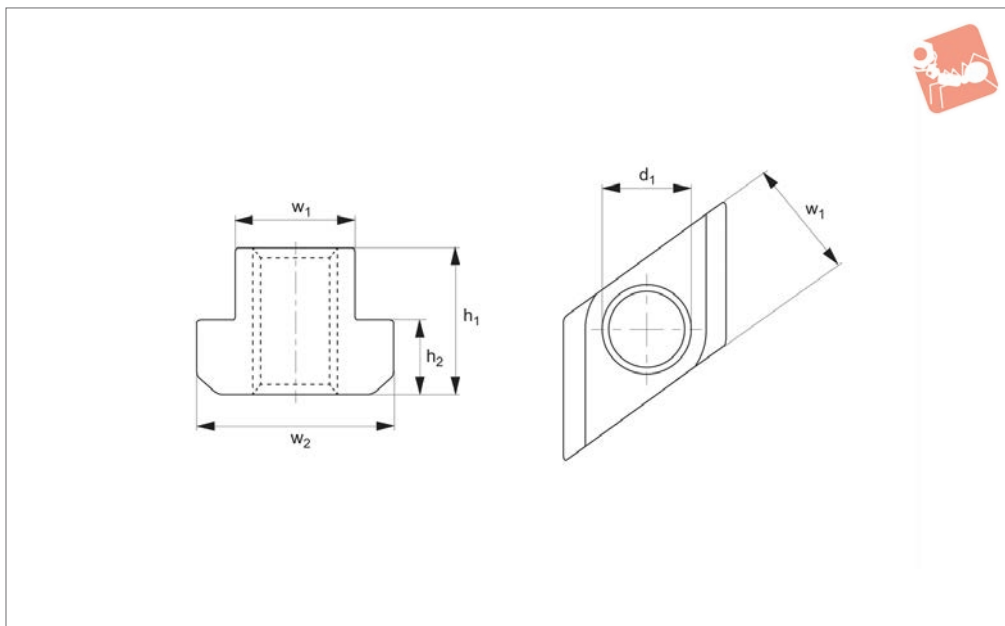
Material

Steel, heat treated.
Tensile strength class 10.

Technical Notes

The extended length of the T-nut protects
T-slots from damage.

Order No.	d ₁ x T-Slot	w ₁	w ₂	h ₁	h ₂	l ₁	Weight g
24100.W0060	M 5x6	5.7	10	8	4	20	8
24100.W0080	M 6x8	7.7	13	10	6	26	14
24100.W0100	M 8x10	9.7	15	12	6	30	30
24100.W0120	M10x12	11.7	18	14	7	36	49
24100.W0140	M12x14	13.7	22	16	8	44	82
24100.W0160	M14x16	15.7	25	18	9	50	120
24100.W0180	M16x18	17.7	28	20	10	56	170
24100.W0200	M18x20	19.7	32	24	12	64	260
24100.W0220	M20x22	21.7	35	28	14	70	360
24100.W0280	M24x28	27.7	44	36	18	88	730
24100.W0360	M30x36	35.6	54	44	22	108	1390



24120

T-NUTS & T-BOLTS

Material

Steel, heat-treated.

Technical Notes

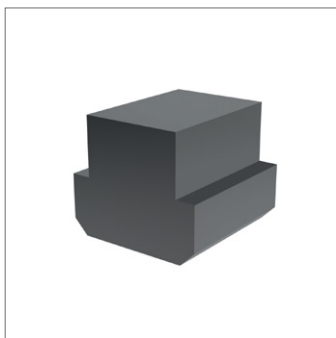
Can be fitted into T-slots from above.

Tips

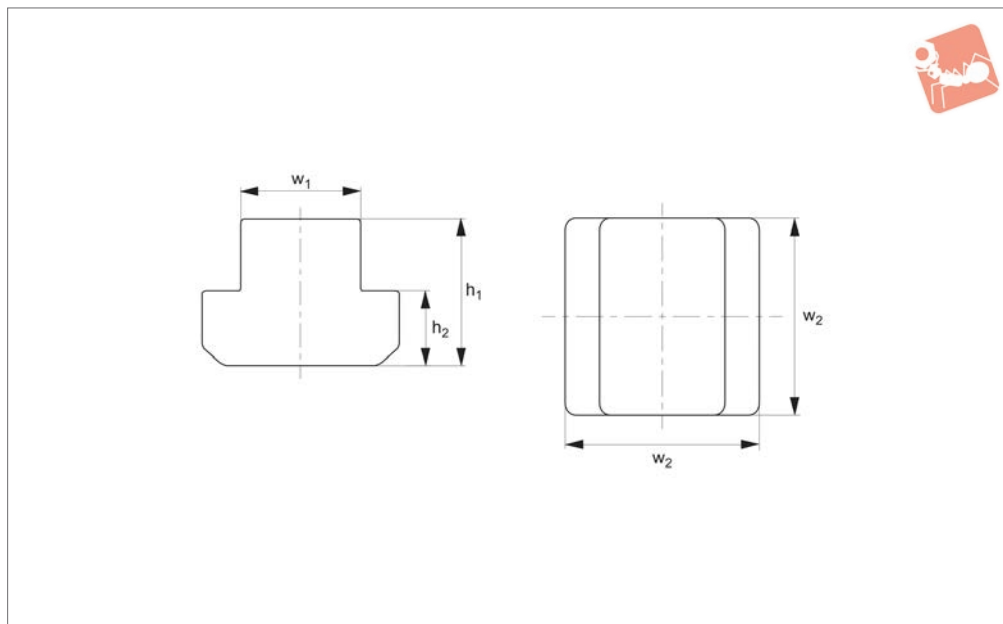
Very useful on long T-slots or where work-piece layout prohibits the introduction of bolts or nuts from the end of the T-slot.

Keep slots clean to ensure accurate fit.

Order No.	d ₁ x T-Slot	Strength class	w ₁	w ₂	h ₁	h ₂	Weight g
24120.W0060	M 5x6	10	5.7	10	8	4	2
24120.W0080	M 6x8	10	7.6	13	10	6	5
24120.W0100	M 8x10	10	9.6	15	12	6	9
24120.W0120	M10x12	8	11.7	18	14	7	14
24120.W0140	M10x14	8	13.7	22	16	8	23
24120.W0160	M14x16	6	15.7	25	18	9	33
24120.W0181	M16x18	6	17.7	28	20	10	46
24120.W0201	M18x20	6	19.7	32	24	12	69
24120.W0221	M20x22	6	21.7	35	28	14	98
24120.W0281	M24x28	6	27.7	44	36	18	213
24120.W0360	M30x36	6	35.6	54	44	22	430
24120.W0420	M36x42	6	41.6	65	52	26	690



24160



Material

Carbon steel, 0,35 - 0,45%C.

Technical Notes

DIN 508.

After machining thread, heat treat to

tensile strength class 10. Heat to 880°C for 45 minutes, quench in oil at 75°C and temper at 550°C for two hours.

Please note T-nuts are square, length and width are both equal to dimension w_2 .

Tips

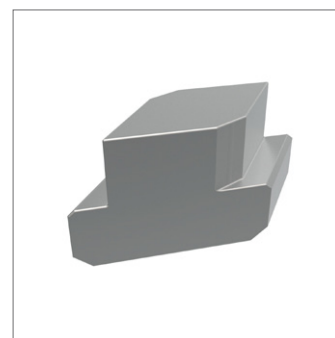
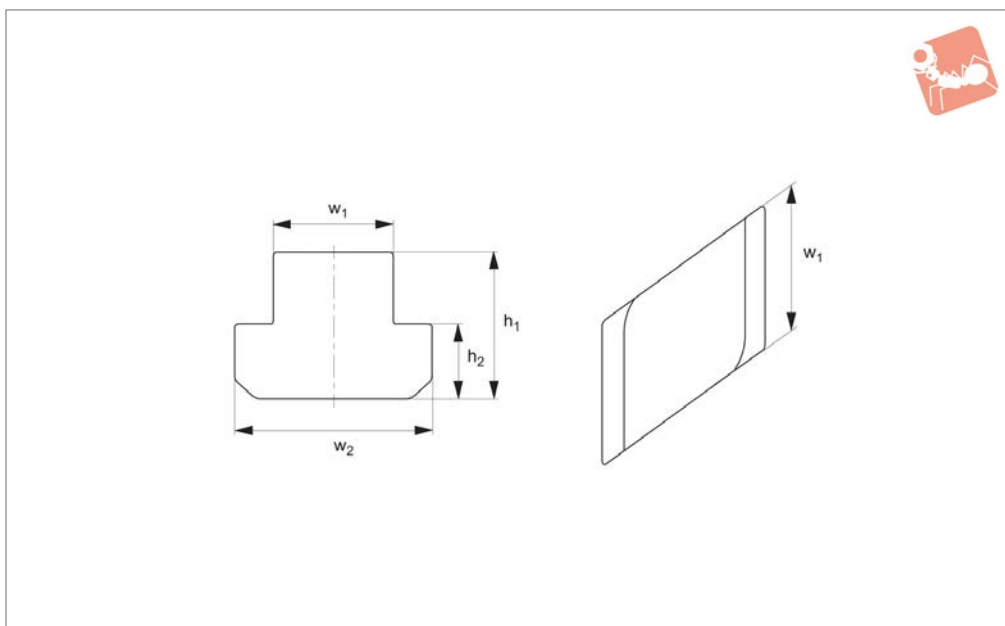
Useful for machining unusual thread sizes or imperial threads.

Order No.	T-slot size	w_1	w_2	h_1	h_2	Weight g
24160.W0060	6	5.7	10	8	4	4
24160.W0080	8	7.7	13	10	6	10
24160.W0100	10	9.7	15	12	6	16
24160.W0120	12	11.7	18	14	7	27
24160.W0140	14	13.7	22	16	8	50
24160.W0160	16	15.7	25	18	9	70
24160.W0180	18	17.7	28	20	10	95
24160.W0200	20	19.7	32	24	12	150
24160.W0220	22	21.7	35	28	14	210
24160.W0240	24	23.7	40	32	16	300
24160.W0280	28	27.7	44	36	18	430
24160.W0320	32	31.7	50	40	20	630
24160.W0360	36	35.6	54	44	22	800
24160.W0420	42	41.6	65	52	26	1400
24160.W0480	48	47.6	75	60	30	2100
24160.W0540	54	53.6	85	70	34	3150



Rhombus T-Nuts semi-finished

T-Nuts & T-Bolts



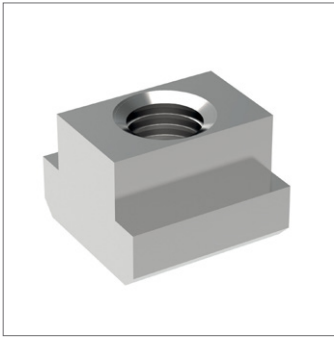
24190

T-NUTS & T-BOLTS

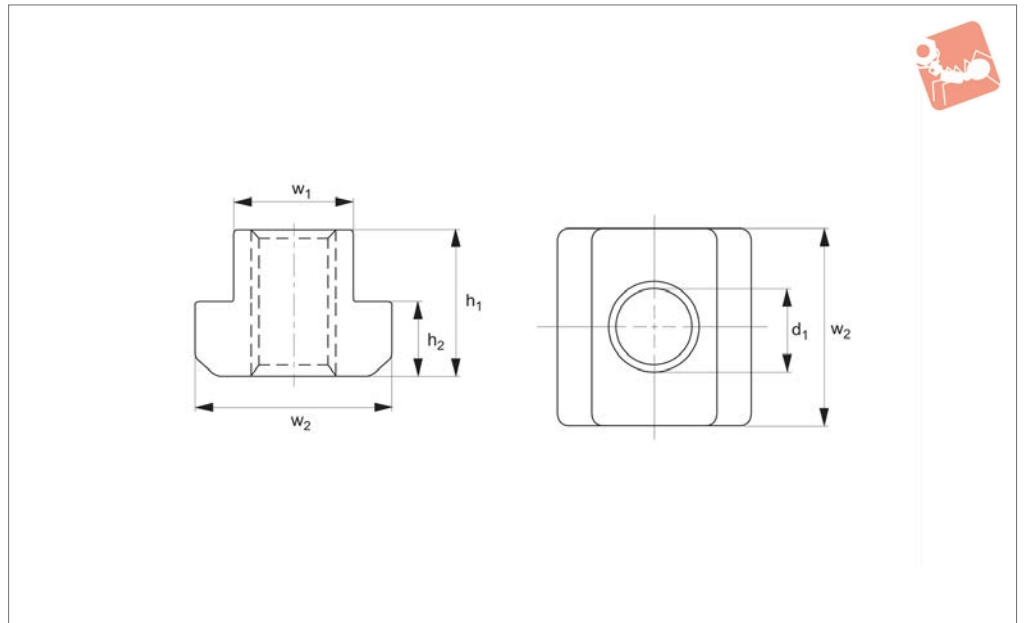
Material

Steel, heat-treated, bright.

Order No.	T-slot size	w ₁	w ₂	h ₁	h ₂	Weight g
24190.W0561	6	5.7	10	8	4	3
24190.W0581	8	7.6	13	10	6	7
24190.W0601	10	9.6	15	12	6	13
24190.W0621	12	11.6	18	14	7	21
24190.W0641	14	13.6	22	16	8	35
24190.W0661	16	15.6	25	18	9	52
24190.W0681	18	17.6	28	20	10	73
24190.W0701	20	19.6	32	24	12	110
24190.W0721	22	21.6	35	28	14	158
24190.W0781	28	27.6	44	36	18	324
24190.W0861	36	35.5	54	44	22	635



24020



Material

Stainless steel (AISI 304, 1.4301).

Please note T-nuts are square, length and width are both equal to dimension w_2 .

Technical Notes

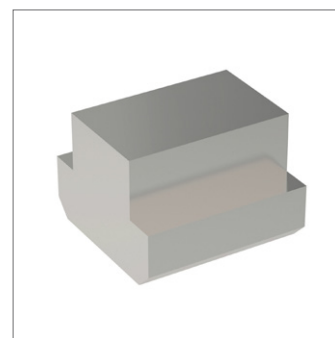
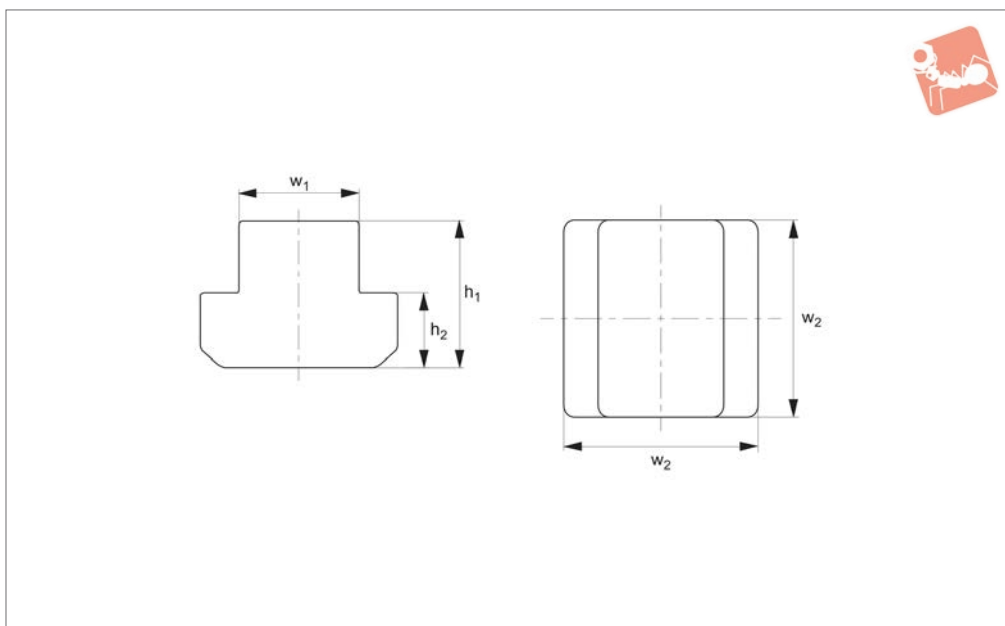
T-nuts to DIN 508.

Order No.	$d_1 \times$ T-Slot	w_1	w_2	h_1	h_2	Weight g
24020.W0081	M 6 x 8	7.6	13	10	6	8
24020.W0101	M 8 x 10	9.6	15	12	6	13
24020.W0121	M10 x 12	11.6	18	14	7	20
24020.W0141	M12 x 14	13.6	22	16	8	34
24020.W0161	M14 x 16	15.6	25	18	9	49
24020.W0181	M16 x 18	17.6	28	20	10	68



T-Nuts - Semi Finished stainless steel

T-Nuts & T-Bolts



24180

T-NUTS & T-BOLTS

Material

Stainless steel (AISI 304, 1.4301).

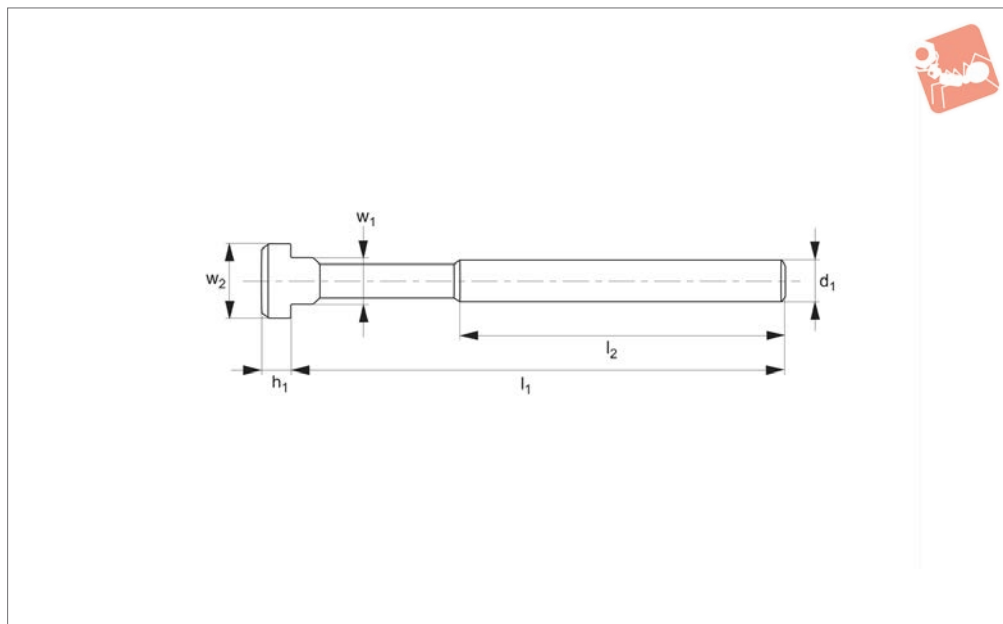
Technical Notes

Please note T-nuts are square, length and width are both equal to w_2 .

Order No.	T-slot size	w_1	w_2	h_1	h_2	Weight g
24180.W0080	8	7.6	13	10	6	10
24180.W0100	10	9.6	15	12	6	17
24180.W0120	12	11.6	18	14	7	27
24180.W0124	14	13.6	22	16	8	46
24180.W0160	16	15.6	25	18	9	68
24180.W0180	18	17.6	28	20	10	95



21000



Material

Forged steel, rolled thread.
Milled T-slot flat faces.

Sizes M 6-M12 strength class 10.9.
Sizes M14-M42 strength class 8.8.

sent by w_2 .

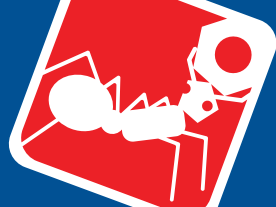
Technical Notes

Produced to DIN787.

Tips

The T-nut element of all T-slot bolts are square, the dimension of which is repre-

Order No.	$d_1 \times \text{T-Slot} \times l_1$	l_2	w_1	w_2	h_1	Weight g
21000.W0061	M 6x6x25	15	5.7	10	4	9
21000.W0062	M 6x6x40	28	5.7	10	4	12
21000.W0081	M 8x8x32	22	7.7	13	6	20
21000.W0082	M 8x8x50	35	7.7	13	6	25
21000.W0083	M 8x8x80	50	7.7	13	6	30
21000.W0101	M10x10x40	30	9.7	15	6	30
21000.W0102	M10x10x63	45	9.7	15	6	50
21000.W0103	M10x10x100	60	9.7	15	6	70
21000.W0104	M10x10x80	50	9.7	15	6	60
21000.W0121	M12x12x50	33	11.7	18	7	60
21000.W0122	M12x12x63	40	11.7	18	7	65
21000.W0123	M12x12x80	55	11.7	18	7	75
21000.W0124	M12x12x125	75	11.7	18	7	110
21000.W0126	M12x12x100	65	11.7	18	7	90
21000.W0127	M12x12x160	100	11.7	18	7	135
21000.W0125	M12x12x200	120	11.7	18	7	160
21000.W0141	M12x14x50	33	13.7	22	8	70
21000.W0142	M12x14x63	45	13.7	22	8	80
21000.W0143	M12x14x80	55	13.7	22	8	100
21000.W0144	M12x14x125	75	13.7	22	8	120
21000.W0145	M12x14x200	120	13.7	22	8	180
21000.W0146	M12x14x100	65	13.7	22	8	110
21000.W0147	M12x14x160	100	13.7	22	8	150
21000.W0159	M14x16x80	55	15.7	25	9	130
21000.W0160	M14x16x125	75	15.7	25	9	180
21000.W0161	M14x16x63	45	15.7	25	9	115
21000.W0162	M14x16x100	65	15.7	25	9	150
21000.W0163	M14x16x160	100	15.7	25	9	220
21000.W0164	M14x16x250	150	15.7	25	9	300
21000.W0165	M16x16x63	45	15.7	25	9	140
21000.W0166	M16x16x80	55	15.7	25	9	160
21000.W0167	M16x16x100	65	15.7	25	9	180



T-Slot Bolts

strength class 8,8/10,9



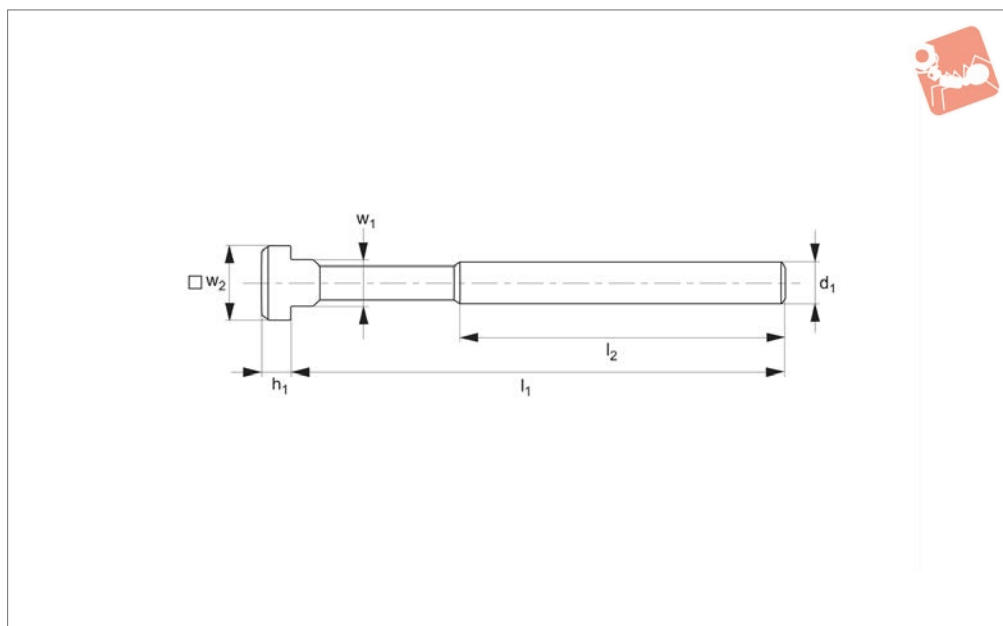
T-Nuts & T-Bolts

Order No.	d ₁ x T-Slot x l ₁	l ₂	w ₁	w ₂	h ₁	Weight g
21000.W0168	M16x16x160	100	15.7	25	9	270
21000.W0169	M16x16x200	125	15.7	25	9	315
21000.W0170	M16x16x250	150	15.7	25	9	380
21000.W0171	M16x16x125	85	15.7	25	9	225
21000.W0181	M16x18x63	45	17.7	28	10	160
21000.W0182	M16x18x80	55	17.7	28	10	185
21000.W0183	M16x18x100	65	17.7	28	10	203
21000.W0187	M16x18x125	85	17.7	28	10	245
21000.W0184	M16x18x160	100	17.7	28	10	280
21000.W0185	M16x18x200	125	17.7	28	10	330
21000.W0186	M16x18x250	150	17.7	28	10	430
21000.W0201	M20x20x80	55	19.7	32	12	290
21000.W0202	M20x20x100	65	19.7	32	12	340
21000.W0203	M20x20x125	85	19.7	32	12	390
21000.W0204	M20x20x160	110	19.7	32	12	470
21000.W0205	M20x20x200	125	19.7	32	12	550
21000.W0206	M20x20x250	150	19.7	32	12	670
21000.W0207	M20x20x315	190	19.7	32	12	800
21000.W0221	M20x22x80	55	21.7	35	14	330
21000.W0222	M20x22x100	65	21.7	35	14	370
21000.W0223	M20x22x125	85	21.7	35	14	428
21000.W0224	M20x22x160	110	21.7	35	14	500
21000.W0225	M20x22x200	125	21.7	35	14	570
21000.W0226	M20x22x250	150	21.7	35	14	680
21000.W0227	M20x22x315	190	21.7	35	14	820
21000.W0241	M24x24x100	70	23.7	40	16	540
21000.W0242	M24x24x125	85	23.7	40	16	600
21000.W0243	M24x24x160	110	23.7	40	16	770
21000.W0244	M24x24x200	125	23.7	40	16	900
21000.W0245	M24x24x250	150	23.7	40	16	960
21000.W0246	M24x24x315	190	23.7	40	16	1270
21000.W0247	M24x24x400	240	23.7	40	16	1410
21000.W0281	M24x28x100	70	27.7	44	18	650
21000.W0282	M24x28x125	85	27.7	44	18	720
21000.W0283	M24x28x160	110	27.7	44	18	800
21000.W0284	M24x28x200	125	27.7	44	18	950
21000.W0285	M24x28x250	150	27.7	44	18	1120
21000.W0286	M24x28x315	190	27.7	44	18	1350
21000.W0287	M24x28x400	240	27.7	44	18	1490
21000.W0288	M27x32x160	100	31.6	50	20	1168
21000.W0289	M27x32x200	135	31.6	50	20	1245
21000.W0290	M27x32x315	200	31.6	50	20	1828
21000.W0361	M30x36x125	80	35.6	54	22	1250
21000.W0362	M30x36x160	110	35.6	54	22	1440
21000.W0363	M30x36x200	135	35.6	54	22	1630
21000.W0364	M30x36x250	150	35.6	54	22	1920
21000.W0365	M30x36x315	200	35.6	54	22	2100
21000.W0366	M30x36x500	300	35.6	54	22	3300
21000.W0421	M36x42x160	100	41.6	65	26	2200
21000.W0422	M36x42x250	175	41.6	65	26	2820
21000.W0423	M36x42x400	250	41.6	65	26	3930
21000.W0424	M36x42x600	340	41.6	65	26	5480
21000.W0481	M42x48x160	100	47.6	75	30	3400
21000.W0482	M42x48x250	175	47.6	75	30	4300
21000.W0483	M42x48x400	250	47.6	75	30	5800

T-NUTS & T-BOLTS



21050



Material

Forged steel, rolled threads.
T-slot guide faces milled.
Strength class 12.9 punched into head.

Tips

For use where higher clamping forces are required. The T-nut element of all T-slot bolts are square, the dimension of which is

represented by w_2 .

Order No.	$d_1 \times \text{slot} \times l_1$	l_2	w_1	w_2	h_1	Weight g
21050.W0101	M10x10x40	30	9.7	15	6	30
21050.W0102	M10x10x50	35	9.7	15	6	40
21050.W0103	M10x10x80	50	9.7	15	6	60
21050.W0104	M10x10x100	60	9.7	15	6	70
21050.W0121	M12x12x50	35	11.7	18	7	60
21050.W0126	M12x12x63	40	11.7	18	7	65
21050.W0122	M12x12x80	55	11.7	18	7	75
21050.W0127	M12x12x100	65	11.7	18	7	90
21050.W0123	M12x12x125	75	11.7	18	7	110
21050.W0128	M12x14x160	100	11.7	18	7	135
21050.W0124	M12x12x200	120	11.7	18	7	160
21050.W0141	M12x14x50	35	13.7	22	8	70
21050.W0146	M12x14x63	45	13.7	22	8	80
21050.W0142	M12x14x80	55	13.7	22	8	100
21050.W0147	M12x14x100	65	13.7	22	8	110
21050.W0143	M12x14x125	75	13.7	22	8	120
21050.W0148	M12x14x160	100	13.7	22	8	150
21050.W0144	M12x14x200	120	13.7	22	8	180
21050.W0161	M16x16x63	45	15.7	25	9	140
21050.W0165	M16x16x80	55	15.7	25	9	160
21050.W0162	M16x16x100	65	15.7	25	9	180
21050.W0166	M16x16x125	85	15.7	25	9	225
21050.W0163	M16x16x160	100	15.7	25	9	270
21050.W0167	M16x16x200	125	15.7	25	9	315
21050.W0164	M16x16x250	150	15.7	25	9	380
21050.W0181	M16x18x63	45	17.7	28	10	160
21050.W0186	M16x18x80	55	17.7	28	10	185
21050.W0182	M16x18x100	65	17.7	28	10	203
21050.W0187	M16x18x125	85	17.7	28	10	230
21050.W0183	M16x18x160	100	17.7	28	10	280
21050.W0188	M16x18x200	125	17.7	28	10	330
21050.W0184	M16x18x250	150	17.7	28	10	430
21050.W0201	M20x20x80	55	19.7	32	12	290
21050.W0202	M20x20x125	85	19.7	32	12	390



T-Slot Bolts

extra strength - class 12,9

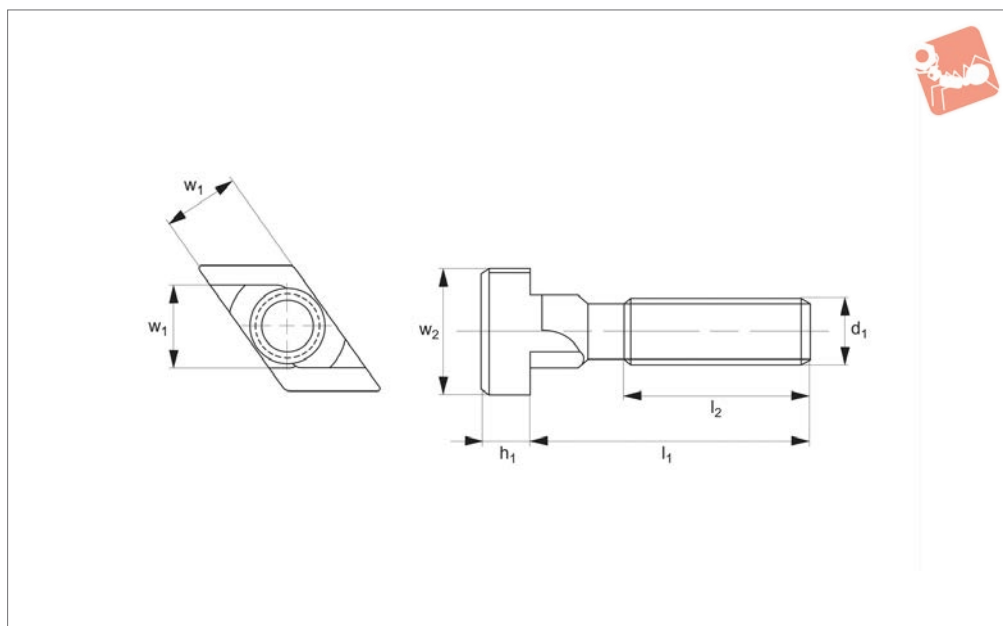
T-Nuts & T-Bolts



Order No.	d ₁ x slot x l ₁	l ₂	w ₁	w ₂	h ₁	Weight g
21050.W0205	M20x20x160	110	19.7	32	12	470
21050.W0203	M20x20x200	125	19.7	32	12	550
21050.W0206	M20x20x250	150	19.7	32	12	670
21050.W0204	M20x20x315	190	19.7	32	12	800
21050.W0221	M20x22x80	55	21.7	35	14	330
21050.W0222	M20x22x125	85	21.7	35	14	428
21050.W0225	M20x22x160	110	21.7	35	14	500
21050.W0223	M20x22x200	125	21.7	35	14	570
21050.W0226	M20x22x250	150	21.7	35	14	680
21050.W0224	M20x22x315	190	21.7	35	14	820
21050.W0241	M24x24x100	70	23.7	40	16	540
21050.W0242	M24x24x160	110	23.7	40	16	770
21050.W0245	M24x24x200	125	23.7	40	16	900
21050.W0243	M24x24x250	150	23.7	40	16	960
21050.W0244	M24x24x400	240	23.7	40	16	1410
21050.W0281	M24x28x100	70	27.7	44	18	650
21050.W0282	M24x28x160	110	27.7	44	18	800
21050.W0285	M24x28x200	125	27.7	44	18	950
21050.W0283	M24x28x250	150	27.7	44	18	1120
21050.W0284	M24x28x400	240	27.7	44	18	1490
21050.W0361	M30x36x160	110	35.6	54	22	1950
21050.W0362	M30x36x200	135	35.6	54	22	2230
21050.W0363	M30x36x250	150	35.6	54	22	2555
21050.W0364	M30x36x315	200	35.6	54	22	2950



21060



Material

Forged steel, rolled thread, heat-treated.

Technical Notes

Tensile strength 8,8.

Tips

This unique T-slot bolt combines the integral strength of a one piece T-bolt, with the functionality of a rhombus type nut to

provide access to T-slots where workpiece layout prohibits the introduction of standard T-slot bolts no. 21000.

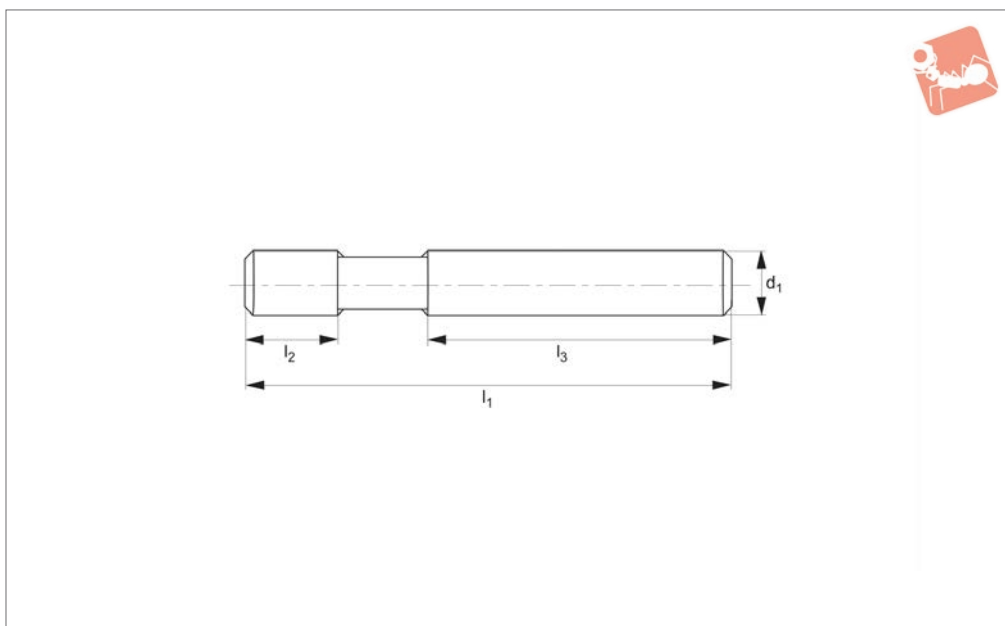
Order No.	d ₁ x T-Slot x l ₁	l ₂	w ₁	w ₂	h ₁	Weight g
21060.W0141	M12x14x50	35	13.7	22	8	70
21060.W0142	M12x14x80	55	13.7	22	8	100
21060.W0143	M12x14x125	75	13.7	22	8	120
21060.W0181	M16x18x63	45	17.7	28	10	160
21060.W0182	M16x18x100	65	17.7	28	10	220
21060.W0183	M16x18x160	100	17.7	28	10	280
21060.W0221	M20x22x80	55	21.7	35	14	330
21060.W0223	M20x22x125	85	21.7	35	14	430
21060.W0225	M20x22x200	120	21.7	35	14	570
21060.W0282	M24x28x125	85	27.7	44	18	770
21060.W0285	M24x28x250	150	27.7	44	18	1120



Studs

strength class 8,8/10,9

T-Nuts & T-Bolts



21100

T-NUTS & T-BOLTS

Material

Forged steel, rolled thread, heat-treated.

M 6-M12 - tensile strength class 10,9.
M14-M42 tensile strength class 8,8.

and 25000 for appropriate T-nuts, fixture nuts, collar nuts and washers.

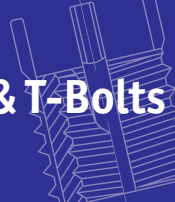
Technical Notes

Produced to DIN 6379.

Tips

Please refer to nos. 24000, 24300, 24400

Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21100.W0061	M 6x32	9	16	8
21100.W0062	M 6x40	9	20	9
21100.W0063	M 6x50	9	30	11
21100.W0064	M 6x63	9	40	14
21100.W0065	M 6x80	9	50	18
21100.W0081	M 8x40	11	20	10
21100.W0082	M 8x63	11	40	20
21100.W0083	M 8x80	11	50	25
21100.W0084	M 8x100	11	63	30
21100.W0085	M 8x160	11	100	45
21100.W0086	M 8x125	11	75	36
21100.W0101	M10x50	13	25	25
21100.W0102	M10x80	13	50	40
21100.W0103	M10x100	13	75	50
21100.W0104	M10x125	13	75	62
21100.W0105	M10x160	13	100	80
21100.W0106	M10x200	13	125	100
21100.W0121	M12x50	15	25	37
21100.W0122	M12x63	15	32	45
21100.W0123	M12x80	15	50	55
21100.W0124	M12x100	15	63	70
21100.W0125	M12x125	15	75	90
21100.W0126	M12x160	15	100	113
21100.W0127	M12x200	15	125	140
21100.W0141	M14x63	17	32	80
21100.W0142	M14x100	17	63	90
21100.W0143	M14x160	17	100	150
21100.W0144	M14x200	17	125	195
21100.W0145	M14x250	17	160	240
21100.W0146	M14x80	17	50	85
21100.W0147	M14x125	17	75	120
21100.W0161	M16x63	19	32	85
21100.W0162	M16x80	19	50	105
21100.W0163	M16x100	19	63	130



Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21100.W0164	M16x125	19	75	160
21100.W0165	M16x160	19	100	218
21100.W0166	M16x200	19	125	280
21100.W0167	M16x250	19	160	325
21100.W0168	M16x315	19	180	425
21100.W0169	M16x500	19	315	650
21100.W0181	M18x80	23	50	130
21100.W0182	M18x125	23	75	200
21100.W0183	M18x160	23	100	255
21100.W0184	M18x200	23	125	320
21100.W0185	M18x250	23	150	400
21100.W0186	M18x315	23	180	500
21100.W0201	M20x80	27	32	185
21100.W0202	M20x125	27	70	255
21100.W0203	M20x160	27	100	330
21100.W0204	M20x200	27	125	410
21100.W0205	M20x250	27	160	510
21100.W0206	M20x315	27	200	640
21100.W0207	M20x400	27	250	815
21100.W0208	M20x500	27	315	1020
21100.W0221	M22x100	31	45	270
21100.W0222	M22x160	31	100	430
21100.W0223	M22x200	31	125	500
21100.W0224	M22x250	31	160	670
21100.W0225	M22x315	31	180	790
21100.W0226	M22x400	31	250	1070
21100.W0241	M24x100	35	45	290
21100.W0242	M24x125	35	70	380
21100.W0243	M24x160	35	100	470
21100.W0244	M24x200	35	125	580
21100.W0245	M24x250	35	160	730
21100.W0246	M24x315	35	200	920
21100.W0247	M24x400	35	250	1160
21100.W0248	M24x500	35	315	1460
21100.W0249	M24x630	35	315	1850
21100.W0271	M27x125	39	56	485
21100.W0272	M27x200	39	125	770
21100.W0273	M27x315	39	200	1110
21100.W0274	M27x400	39	250	1535
21100.W0275	M27x500	39	315	1930
21100.W0301	M30x125	43	56	590
21100.W0302	M30x200	43	125	950
21100.W0303	M30x315	43	200	1490
21100.W0304	M30x500	43	315	2360
21100.W0305	M30x700	43	400	3300
21100.W0306	M30x1000	43	400	4700
21100.W0361	M36x160	51	80	1100
21100.W0362	M36x200	51	125	1340
21100.W0363	M36x250	51	160	1710
21100.W0364	M36x315	51	200	2150
21100.W0365	M36x400	51	250	2700
21100.W0366	M36x500	51	315	3450
21100.W0367	M36x700	51	400	4750
21100.W0421	M42x315	59	200	2950
21100.W0422	M42x400	59	250	3750



Studs

strength class 8,8/10,9



T-Nuts & T-Bolts

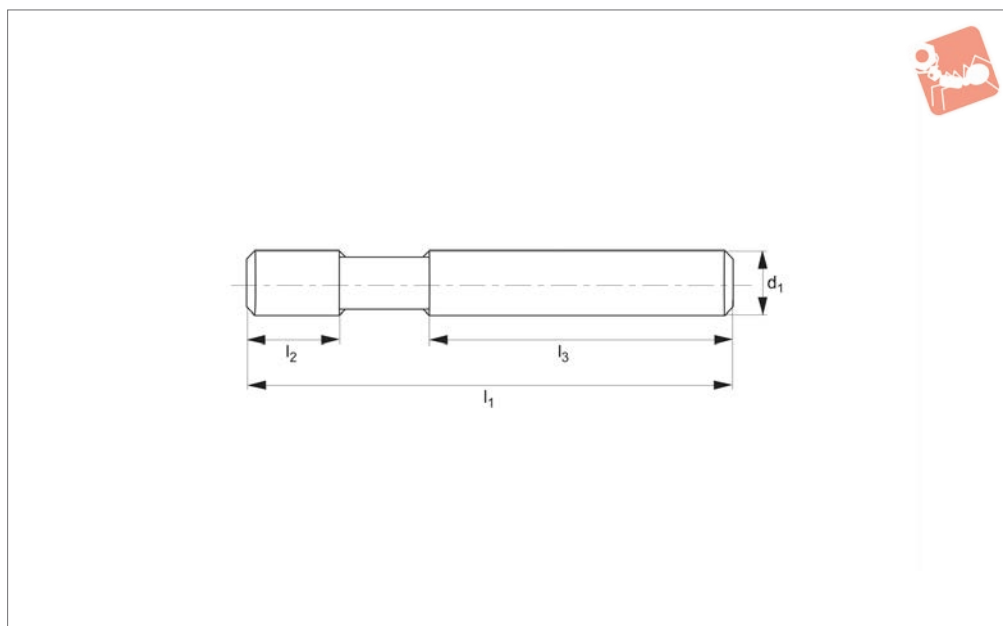
Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21100.W0423	M42x500	59	315	4690



T-NUTS & T-BOLTS



21120



Material

Forged steel, rolled thread, heat treated to tensile strength 12,9.

please refer to part no. 21100.

Tips

Please refer to Nos. 24000, 24300, 24400 and 25000 for appropriate T-nuts, fixture nuts, collar nuts and washers.

Technical Notes

For studs of tensile strength 8,8 and 10,9

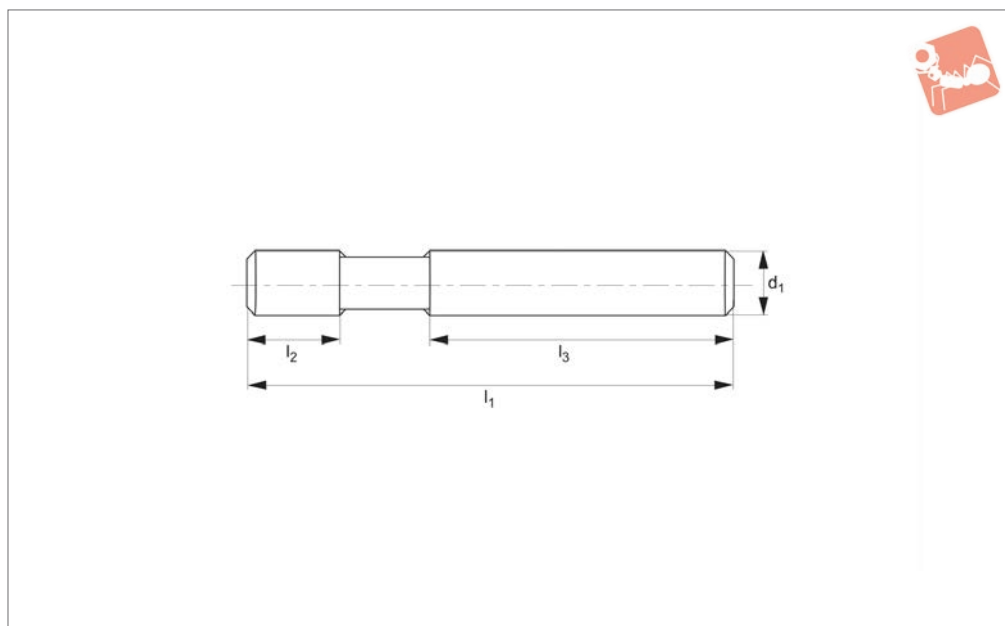
Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21120.W0123	M12x80	15	50	55
21120.W0124	M12x100	15	63	70
21120.W0125	M12x125	15	75	90
21120.W0126	M12x160	15	100	113
21120.W0162	M16 x 80	19	50	105
21120.W0163	M16x100	19	63	130
21120.W0164	M16x125	19	75	160
21120.W0165	M16x160	19	100	218
21120.W0166	M16x200	19	125	280
21120.W0167	M16x250	19	160	325
21120.W0202	M20x125	27	70	255
21120.W0203	M20x160	27	100	330
21120.W0204	M20x200	27	125	410
21120.W0205	M20x250	27	160	510
21120.W0206	M20x315	27	200	640
21120.W0208	M20x500	27	315	1020
21120.W0243	M24x160	35	100	470
21120.W0244	M24x200	35	125	580
21120.W0245	M24x250	35	160	730
21120.W0246	M24x315	35	200	920
21120.W0247	M24x400	35	250	1160
21120.W0248	M24x500	35	315	1460



Studs

l_2 longer than DIN 6379 version

T-Nuts & T-Bolts



21150

T-NUTS & T-BOLTS

Material

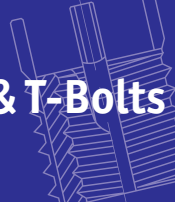
Heat treated steel, blackened.
Strength class 10,9 for M6- M12.
Strength class 8,8 for M16.

Technical Notes

l_2 longer than DIN 6379 version, part no. 21100. Longer thread length provides added security.

Items marked * have full length threaded (hence l_2 and l_3 no longer valid).

Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21150.W1202	M20x125*	-	-	305
21150.W1207	M20x160*	-	-	328
21150.W1203	M20x200	55	100	404
21150.W1204	M20x250	55	125	585
21150.W1205	M20x315	55	180	740
21150.W1208	M20x400	55	250	943
21150.W1206	M20x500	55	315	1175
21150.W1246	M24x125*	-	-	365
21150.W1242	M24x160*	-	-	467
21150.W1247	M24x200*	-	-	585
21150.W1243	M24x250*	-	-	733
21150.W1248	M24x315	70	180	1075
21150.W1244	M24x400	70	250	1366
21150.W1249	M24x500	70	315	1700
21150.W0562	M 6x50	15	30	8
21150.W0563	M 6x63	15	40	11
21150.W0564	M 6x80	15	50	14
21150.W0582	M 8x63	20	40	19
21150.W0583	M 8x100	20	63	31
21150.W0584	M 8x160	20	100	49
21150.W0602	M10x80	25	50	39
21150.W0603	M10x100	25	75	49
21150.W0604	M10x125	25	75	61
21150.W0605	M10x160	25	100	78
21150.W0606	M10x200	25	125	98
21150.W0622	M12x63*	-	-	44
21150.W0623	M12x80*	-	-	56
21150.W0624	M12x100	30	63	70
21150.W0625	M12x125	30	75	88
21150.W0626	M12x160	30	100	112
21150.W0627	M12x200	30	125	140
21150.W0662	M16x80*	-	-	103
21150.W0664	M16x125	40	63	161
21150.W0665	M16x160	40	75	207



Studs

l_2 longer than DIN 6379 version



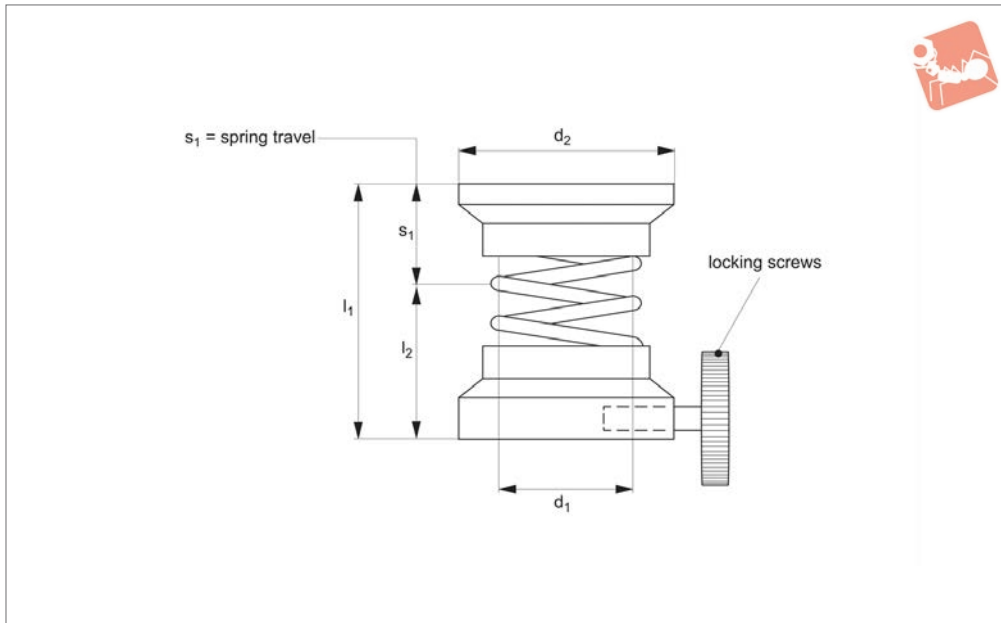
Order No.	$d_1 \times l_1$	l_2	l_3	Weight g
21150.W0666	M16x200	40	100	260
21150.W0667	M16x250	40	125	325



Clamp Supports - Spring Type

with brass locking screw

T-Nuts & T-Bolts



26000

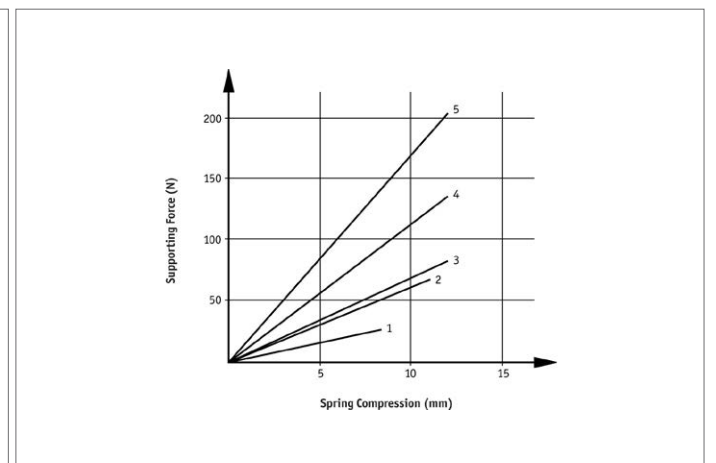
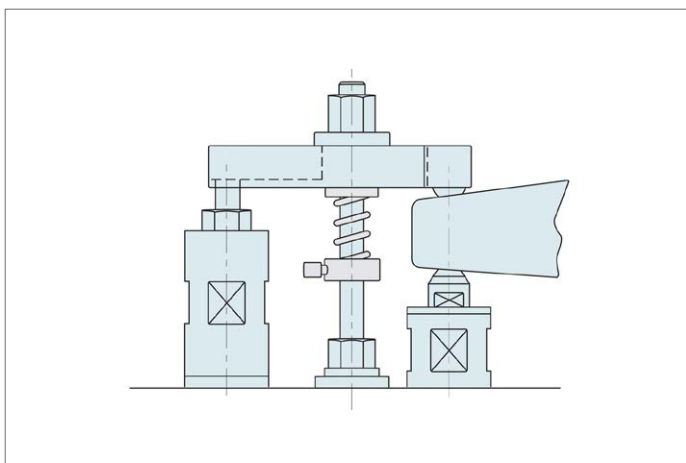
T-NUTS & T-BOLTS

Technical Notes

With brass locking screw.

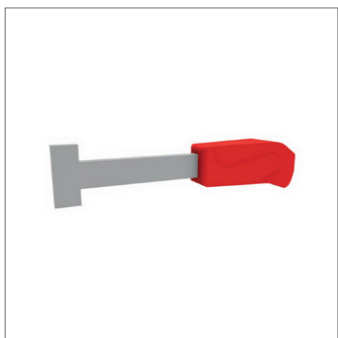
Used as clamp support to prevent the clamp falling when parts are unclamped.

Order No.	For thread	d ₁	d ₂	l ₁	l ₂	Spring travel s ₁	Weight g
26000.W0101	M 8-M10	10.5	22	30	22	8	41
26000.W0102	M12-M14	14.5	26	32	22	10	55
26000.W0103	M16-M18	18.5	32	38	26	12	89
26000.W0104	M20-M22	22.5	38	40	28	12	133
26000.W0105	M24-M27	27.5	45	44	32	12	177

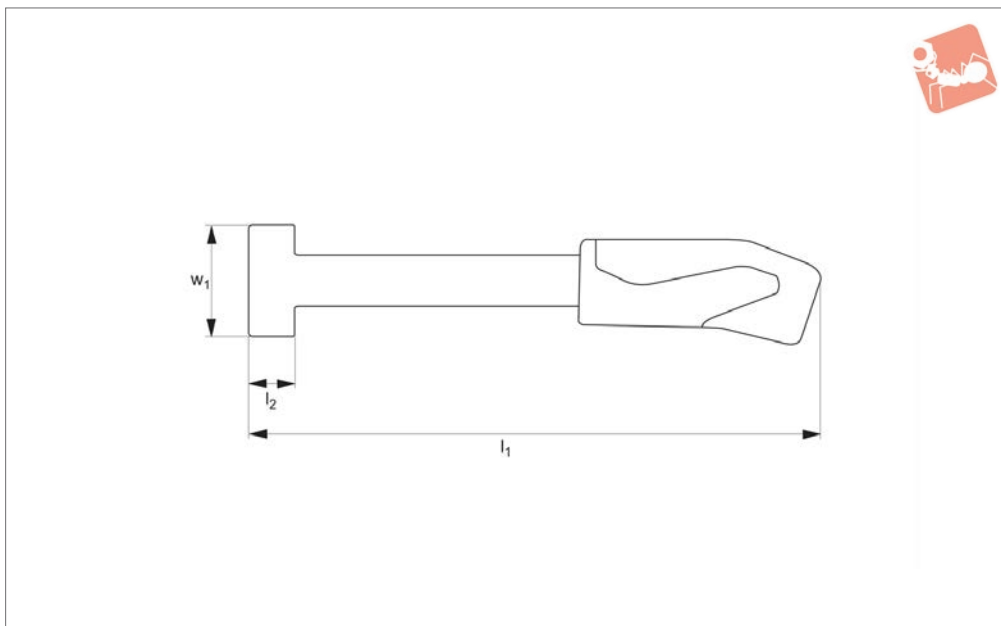




T-NUTS & T-BOLTS



26300



Material

Metal scraper: steel, zinc plated.
 Handle: ergonomic grip from oil resistant

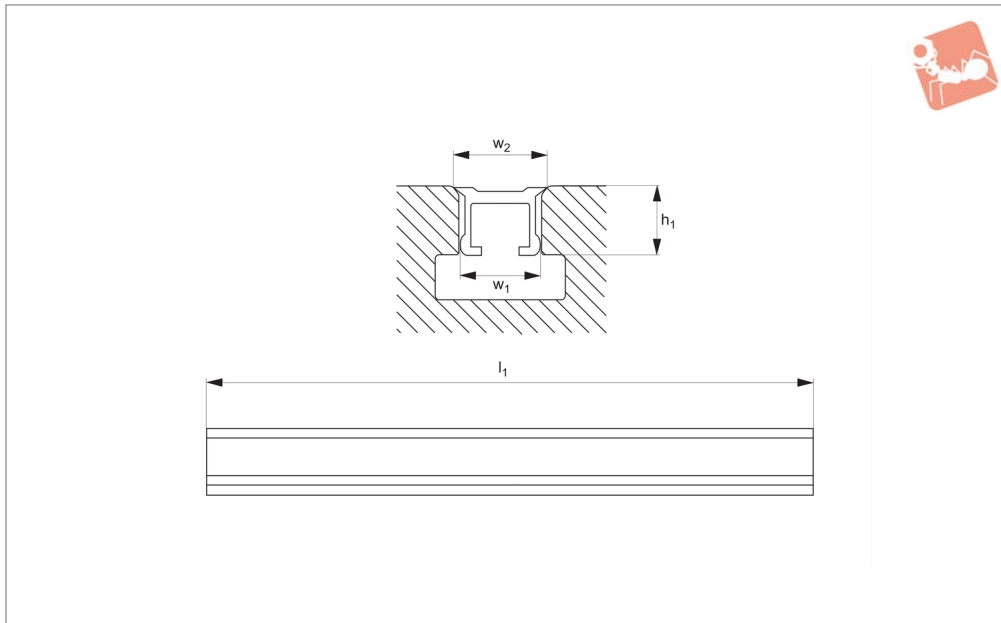
plastic.

hand grip.

Technical Notes

Part number 26300.W0120 does not have

Order No.	T-slot size	w ₁	l ₁	l ₂	Weight g
26300.W0120	14-20	22.5	142	8.5	105
26300.W0132	22-32	35.0	184	14.5	170
26300.W0154	36-54	54.0	260	23.0	525



26500

T-NUTS & T-BOLTS

Material

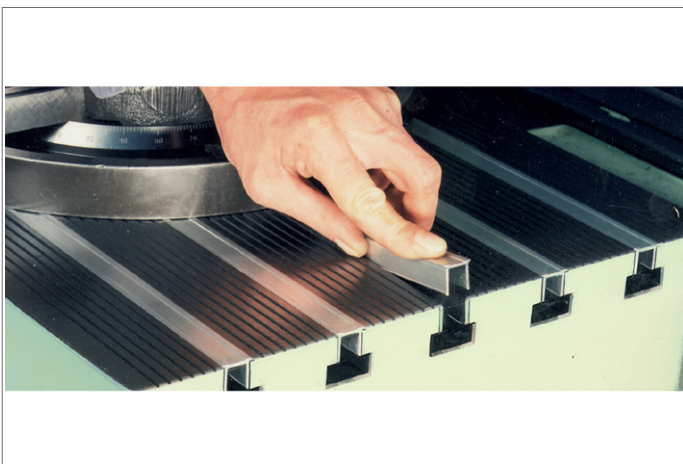
Aluminium profile.

protect T-slots from swarf and other dirt build up.

Technical Notes

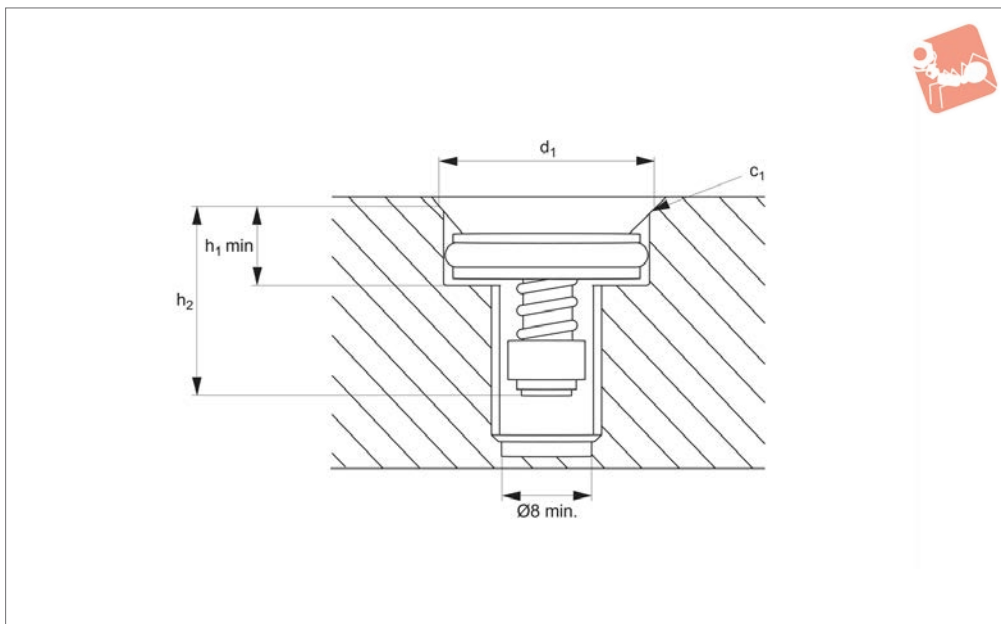
Easily sawn to length. Extremely useful to

Order No.	T-slot w_1	w_2	h_1	l_1	Weight g
26500.W0112	12	13.0	10.5	1000	88
26500.W0114	14	15.5	11.5	1000	100
26500.W0116	16	17.5	14.0	1000	120
26500.W0118	18	19.5	15.0	1000	135
26500.W0120	20	21.5	16.5	1000	150
26500.W0122	22	23.5	18.0	1000	165
26500.W0124	24	25.5	20.0	1000	170
26500.W0128	28	29.5	22.0	1000	200
26500.W0136	36	38.0	22.0	1000	220





26502



Material

Aluminium with rubber O-ring.

Technical Notes

An O-ring holds the aluminium plug in place in the bore hole. The plugs do not

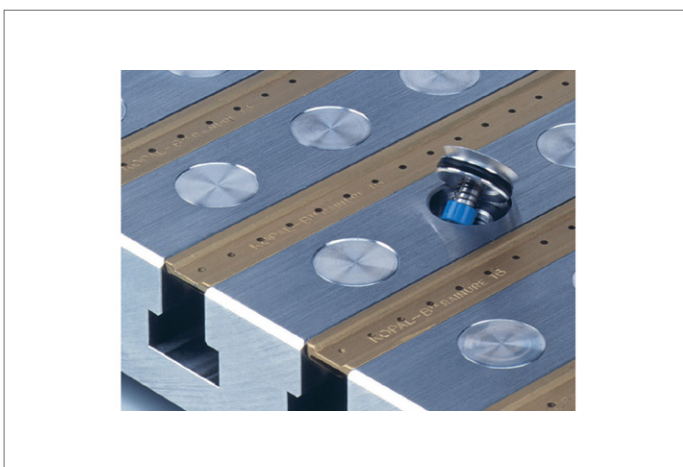
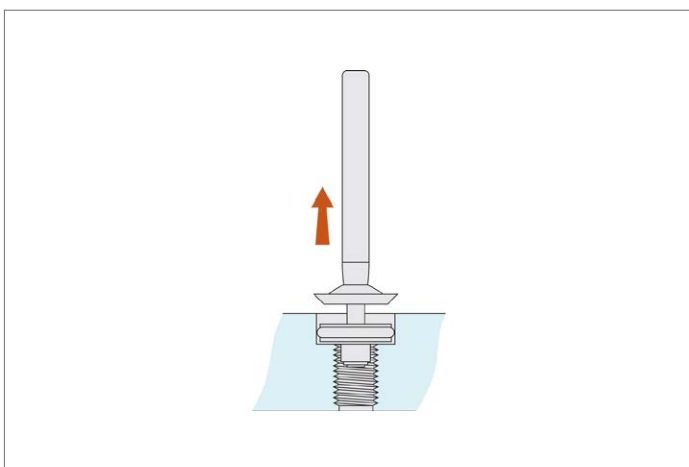
protrude above the table and so can remain installed when using clamps, vices etc.

They are easily installed and removed using the assembly tool.

Tips

Allows machine table areas to be kept clean of dirt, swarf and lubricant.

Order No.	For hole d_1	h_1 min.	h_2	Chamfer c_1 min.
26502.W0005	12	4.3	19.5	0,8x45°
26502.W0010	16	4.9	19.5	1,3x45°
26502.W0015	18	5.0	19.5	1,3x45°
26502.W0020	20	5.5	19.5	1,3x45°
26502.W0025	22	6.5	20.5	1,3x45°
26502.W0030	24	6.5	20.5	1,5x45°
26502.W0035	26	6.5	20.5	1,8x45°
26502.W0040	Assembly Tool	-	-	-



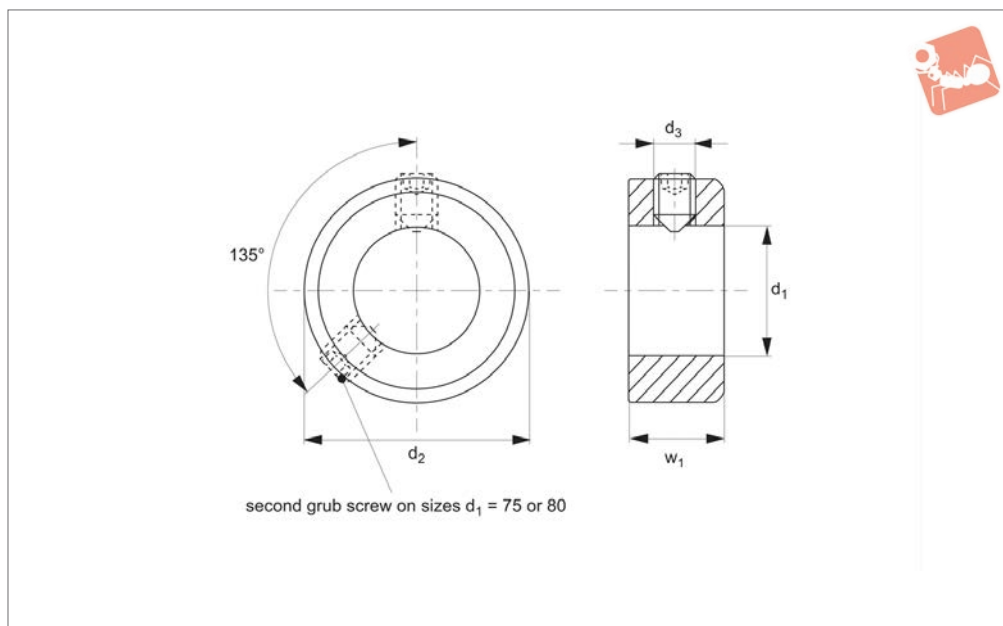


Set Collar

steel - blackened



Set Collars



38500

SET COLLARS

Material

Turned steel, blackened.

Technical Notes

Produced to DIN 705.

Grub screw fitted (either slotted or internal hex). Second grub screw fitted from size $d_1 = 75$.

Order No.	d_1 tol. H8	Fixing screw	d_2	d_3	w_1 tol. js14
38500.W0005	5	Slotted DIN 533	10	M 3x4	6
38500.W0006	6	Slotted DIN 533	10	M 3x4	6
38500.W0007	7	Slotted DIN 533	12	M 4x5	8
38500.W0008	8	Slotted DIN 533	12	M 4x5	8
38500.W0009	9	Slotted DIN 533	12	M 4x5	8
38500.W0010	10	Slotted DIN 533	12	M 4x5	8
38500.W0011	11	Slotted DIN 533	16	M 4x6	8
38500.W0012	12	Slotted DIN 533	16	M 4x6	8
38500.W0013	13	Slotted DIN 533	18	M 5x8	10
38500.W0014	14	Slotted DIN 533	18	M 5x8	10
38500.W0015	15	Slotted DIN 533	20	M 5x8	10
38500.W0016	16	Slotted DIN 533	20	M 5x8	10
38500.W0018	18	Slotted DIN 533	20	M 5x8	10
38500.W0020	20	Slotted DIN 533	20	M 5x8	10
38500.W0022	22	Slotted DIN 533	22	M 6x8	12
38500.W0024	24	Slotted DIN 533	22	M 6x8	12
38500.W0025	25	Slotted DIN 533	22	M 6x8	12
38500.W0026	26	Slotted DIN 533	22	M 6x8	12
38500.W0028	28	Slotted DIN 533	25	M 6x8	12
38500.W0030	30	Slotted DIN 533	25	M 6x8	12
38500.W0032	32	Slotted DIN 533	25	M 6x8	12
38500.W0034	34	Slotted DIN 533	25	M 6x8	12
38500.W0035	35	Slotted DIN 533	28	M 6x8	12
38500.W0036	36	Slotted DIN 533	28	M 6x8	12
38500.W0038	38	Slotted DIN 533	32	M 6x8	14
38500.W0040	40	Slotted DIN 533	32	M 6x8	14
38500.W0042	42	Slotted DIN 533	32	M 6x8	14
38500.W0045	45	Slotted DIN 533	32	M 6x8	14
38500.W0048	48	Slotted DIN 533	36	M 6x10	14
38500.W0050	50	Slotted DIN 533	36	M 6x10	14
38500.W0052	52	Slotted DIN 533	40	M 8x10	16
38500.W0055	55	Slotted DIN 533	40	M 8x10	16
38500.W0060	60	Slotted DIN 533	40	M 8x10	16
38500.W0065	65	Slotted DIN 533	40	M 8x10	16



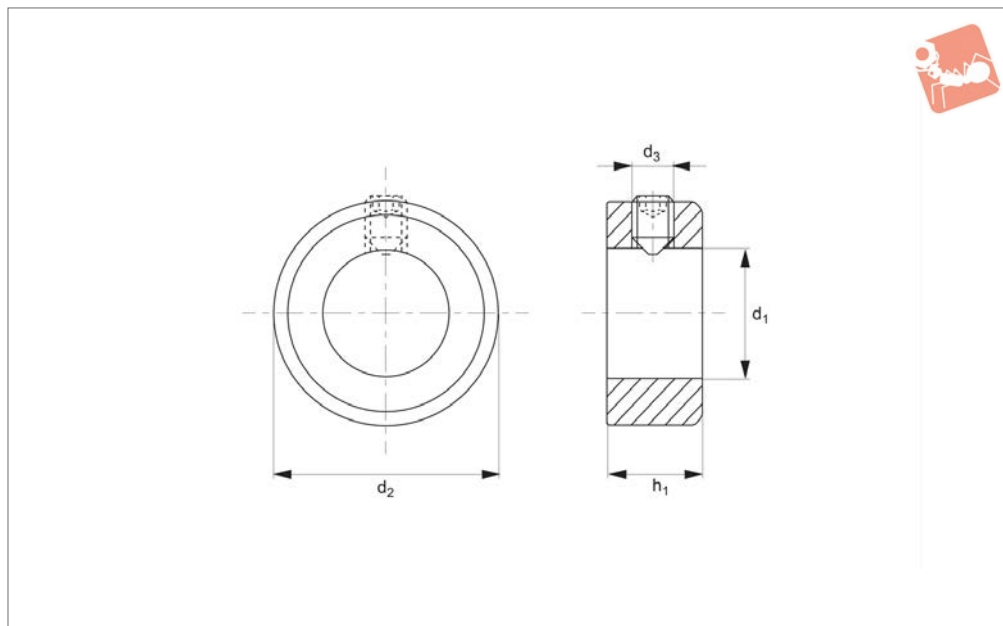
Order No.	d ₁ tol. H8	Fixing screw	d ₂	d ₃	w ₁ tol. js14
38500.W0070	70	Slotted DIN 533	40	M 8x10	16
38500.W0075	75	Slotted DIN 533	40	M 8x10	16
38500.W0080	80	Slotted DIN 533	45	M 8x12	16
38500.W0205	5	Hex DIN 914	45	M 8x12	16
38500.W0206	6	Hex DIN 914	45	M 8x10	16
38500.W0207	7	Hex DIN 914	45	M 8x10	16
38500.W0208	8	Hex DIN 914	50	M 8x12	16
38500.W0209	9	Hex DIN 914	50	M 8x12	16
38500.W0210	10	Hex DIN 914	50	M 8x12	16
38500.W0211	11	Hex DIN 914	50	M 8x12	16
38500.W0212	12	Hex DIN 914	56	M 8x12	16
38500.W0213	13	Hex DIN 914	56	M 8x12	16
38500.W0214	14	Hex DIN 914	56	M 8x12	16
38500.W0215	15	Hex DIN 914	56	M 8x12	16
38500.W0216	16	Hex DIN 914	56	M 8x12	16
38500.W0218	18	Hex DIN 914	56	M 8x12	16
38500.W0220	20	Hex DIN 914	63	M10x16	18
38500.W0222	22	Hex DIN 914	63	M10x16	18
38500.W0224	24	Hex DIN 914	63	M10x16	18
38500.W0225	25	Hex DIN 914	63	M10x16	18
38500.W0226	26	Hex DIN 914	70	M10x16	18
38500.W0228	28	Hex DIN 914	70	M10x16	18
38500.W0230	30	Hex DIN 914	70	M10x16	18
38500.W0232	32	Hex DIN 914	70	M10x16	18
38500.W0234	34	Hex DIN 914	80	M10x16	18
38500.W0235	35	Hex DIN 914	80	M10x16	18
38500.W0236	36	Hex DIN 914	80	M10x16	18
38500.W0238	38	Hex DIN 914	80	M10x16	18
38500.W0240	40	Hex DIN 914	80	M10x16	18
38500.W0242	42	Hex DIN 914	80	M10x16	18
38500.W0245	45	Hex DIN 914	90	M10x16	20
38500.W0248	48	Hex DIN 914	90	M10x16	20
38500.W0250	50	Hex DIN 914	100	M10x20	20
38500.W0252	52	Hex DIN 914	100	M10x20	20
38500.W0255	55	Hex DIN 914	100	M10x20	20
38500.W0260	60	Hex DIN 914	100	M10x20	20
38500.W0265	65	Hex DIN 914	110	M12x20	22
38500.W0270	70	Hex DIN 914	110	M12x20	22
38500.W0275	75	Hex DIN 914	110	M12x20	22
38500.W0280	80	Hex DIN 914	110	M12x20	22



Set Collar stainless steel



Set Collars



38600

SET COLLARS

Material

Stainless steel (AISI 303, 1.4305).

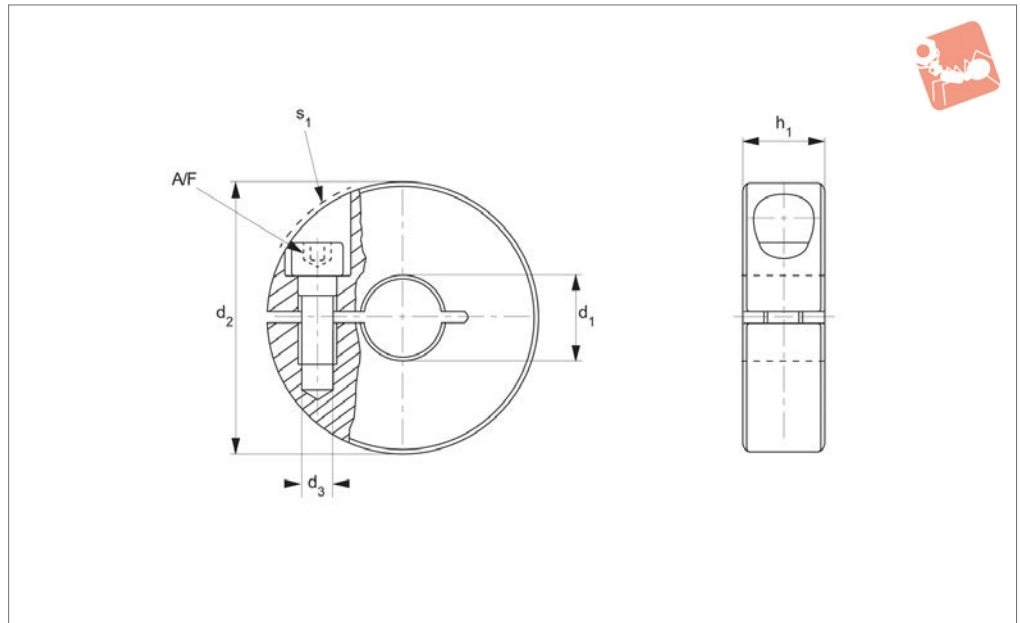
Technical Notes

Grub/set screw fitted and is supplied with the set collar. The screw has a hex drive.

Order No.	d ₁ tol. H8	d ₂	d ₃	h ₁
38600.W0005	5	10	M 3x4	6
38600.W0006	6	12	M 4x5	8
38600.W0008	8	16	M 4x6	8
38600.W0009	9	18	M 5x8	10
38600.W0010	10	20	M 5x8	10
38600.W0011	11	20	M 5x8	10
38600.W0012	12	22	M 6x8	12
38600.W0013	13	22	M 6x8	12
38600.W0014	14	25	M 6x8	12
38600.W0015	15	25	M 6x8	12
38600.W0016	16	28	M 6x8	12
38600.W0018	18	32	M 6x8	14
38600.W0020	20	32	M 6x8	14
38600.W0022	22	36	M 6x10	14
38600.W0024	24	40	M 8x12	16
38600.W0025	25	40	M 8x10	16
38600.W0026	26	40	M 8x10	16
38600.W0028	28	45	M 8x12	16
38600.W0030	30	45	M 8x10	16
38600.W0032	32	50	M 8x12	16
38600.W0034	34	50	M 8x12	16
38600.W0035	35	56	M 8x12	16
38600.W0036	36	56	M 8x12	16
38600.W0038	38	56	M 8x12	16
38600.W0040	40	63	M10x16	18
38600.W0045	45	70	M10x16	18
38600.W0050	50	80	M10x16	18



38620



Material

Steel type:

Steel, black, steam oxidized.

Stainless steel type:

Stainless steel (AISI 316, 1.4404).

Technical Notes

Slotted set collars with strong clamping

force. Universal applicability: e.g as a fixed collar. stop. The stainless steel type is extremely resistant to corrosive environments. Also available in divided finish - see part no. 38624.

Dimension s_1 indicates the max. stroke or movement of d_2 during tightening of the

Order No.	Material	d_1 tol. H10	d_2	d_3	h_1	A/F	Stroke s_1 max.	Weight g
38620.W0006	Steel	6	20	M 3	9	3	1.2	20
38620.W0008	Steel	8	22	M 3	9	3	1.0	18
38620.W0010	Steel	10	26	M 4	11	3	1.6	33
38620.W0012	Steel	12	30	M 4	11	3	0.7	42
38620.W0014	Steel	14	32	M 4	11	3	0.7	40
38620.W0015	Steel	15	36	M 5	13	4	1.4	73
38620.W0016	Steel	16	36	M 5	13	4	1.4	66
38620.W0018	Steel	18	42	M 5	15	4	0.6	120
38620.W0020	Steel	20	42	M 5	15	4	0.6	104
38620.W0022	Steel	22	48	M 5	15	4	0.0	139
38620.W0025	Steel	25	48	M 5	15	4	0.0	130
38620.W0028	Steel	28	55	M 6	15	5	0.5	171
38620.W0030	Steel	30	55	M 6	15	5	0.5	162
38620.W0032	Steel	32	60	M 6	15	5	0.4	196
38620.W0035	Steel	35	60	M 6	15	5	0.4	180
38620.W0040	Steel	40	65	M 6	15	5	0.5	183
38620.W0106	Stainless	6	20	M 3	9	3	1.2	20
38620.W0108	Stainless	8	22	M 3	9	3	1.0	18
38620.W0110	Stainless	10	26	M 4	11	3	1.6	33
38620.W0112	Stainless	12	30	M 4	11	3	0.7	42
38620.W0114	Stainless	14	32	M 4	11	3	0.7	40
38620.W0115	Stainless	15	36	M 5	13	4	1.4	73
38620.W0116	Stainless	16	36	M 5	13	4	1.4	66
38620.W0118	Stainless	18	42	M 5	15	4	0.6	120
38620.W0120	Stainless	20	42	M 5	15	4	0.6	104
38620.W0122	Stainless	22	48	M 5	15	4	0.0	139
38620.W0125	Stainless	25	48	M 5	15	4	0.0	130
38620.W0128	Stainless	28	55	M 6	15	5	0.5	171
38620.W0130	Stainless	30	55	M 6	15	5	0.5	162
38620.W0132	Stainless	32	60	M 6	15	5	0.4	196



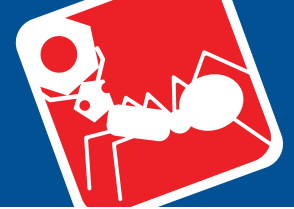
Set Collars

one piece - slotted

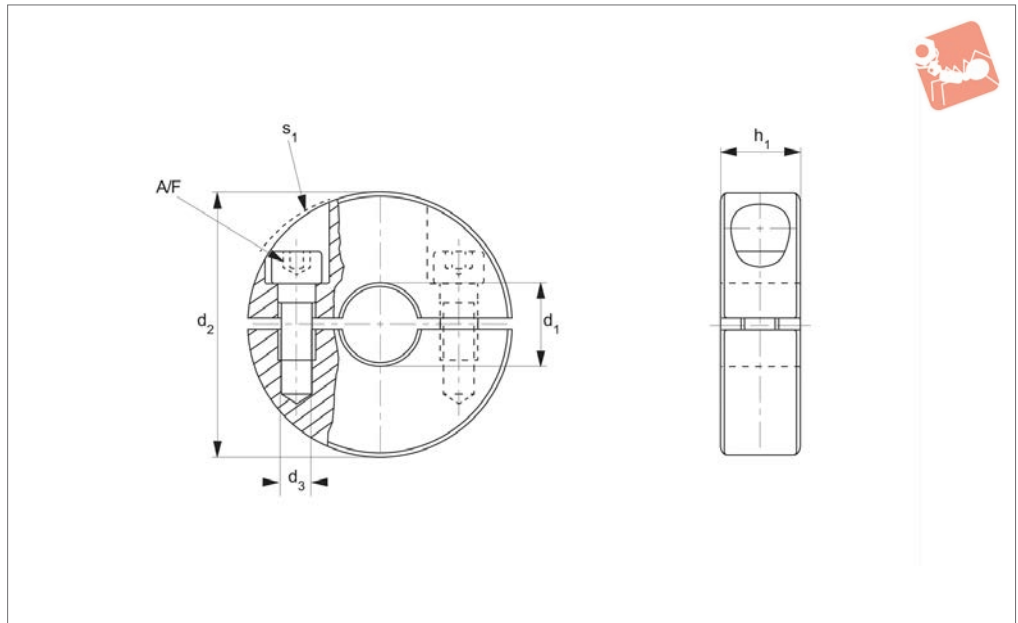


Set Collars

Order No.	Material	d_1 tol. H10	d_2	d_3	h_1	A/F	Stroke s_1 max.	Weight g
38620.W0135	Stainless	35	60	M 6	15	5	0.4	180
38620.W0140	Stainless	40	65	M 6	15	5	0.5	182



38624



Material

Steel type:

Steel, black, steam oxidized.

Stainless steel type:

Stainless steel (AISI 316, 1.4404).

Technical Notes

Divided set collars with strong clamping

force. Universal applicability: e.g as a fixed collar. stop. The stainless steel type is extremely resistant to corrosive environments. Also available in slotted finish - see part no. 38620.

Dimension s_1 indicates the max. stroke or movement of d_2 during tightening of the

Order No.	Material	d_1 tol. H10	d_2	d_3	h_1	A/F	Stroke s_1 max.	Weight g
38624.W0206	Steel	6	20	M 3	9	3	1.2	18
38624.W0208	Steel	8	22	M 3	9	3	1.0	20
38624.W0210	Steel	10	26	M 4	11	3	1.6	20
38624.W0212	Steel	12	30	M 4	11	3	0.7	39
38624.W0214	Steel	14	32	M 4	11	3	0.7	43
38624.W0215	Steel	15	36	M 5	13	4	1.4	65
38624.W0216	Steel	16	36	M 5	13	4	1.4	64
38624.W0218	Steel	18	42	M 5	15	4	0.6	103
38624.W0220	Steel	20	42	M 5	15	4	0.6	100
38624.W0222	Steel	22	48	M 5	15	4	0.0	135
38624.W0225	Steel	25	48	M 5	15	4	0.0	125
38624.W0228	Steel	28	55	M 6	15	5	0.5	165
38624.W0230	Steel	30	55	M 6	15	5	0.5	156
38624.W0232	Steel	32	60	M 6	15	5	0.4	187
38624.W0235	Steel	35	60	M 6	15	5	0.4	170
38624.W0240	Steel	40	65	M 6	15	5	0.5	189
38624.W0306	Stainless	6	20	M 3	9	3	1.2	18
38624.W0308	Stainless	8	22	M 3	9	3	1.0	20
38624.W0310	Stainless	10	26	M 4	11	3	1.6	20
38624.W0312	Stainless	12	30	M 4	11	3	0.7	39
38624.W0314	Stainless	14	32	M 4	11	3	0.7	43
38624.W0315	Stainless	15	36	M 5	13	4	1.4	65
38624.W0316	Stainless	16	36	M 5	13	4	1.4	64
38624.W0318	Stainless	18	42	M 5	15	4	0.6	103
38624.W0320	Stainless	20	42	M 5	15	4	0.6	100
38624.W0322	Stainless	22	48	M 5	15	4	0.0	135
38624.W0325	Stainless	25	48	M 5	15	4	0.0	125
38624.W0328	Stainless	28	55	M 6	15	5	0.5	165
38624.W0330	Stainless	30	55	M 6	15	5	0.5	156
38624.W0332	Stainless	32	60	M 6	15	5	0.4	187



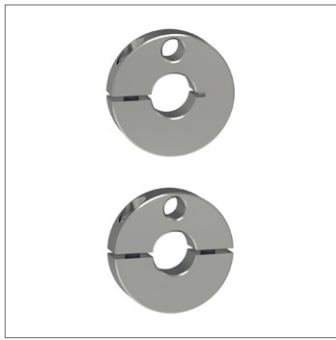
Set Collars

two piece - divided

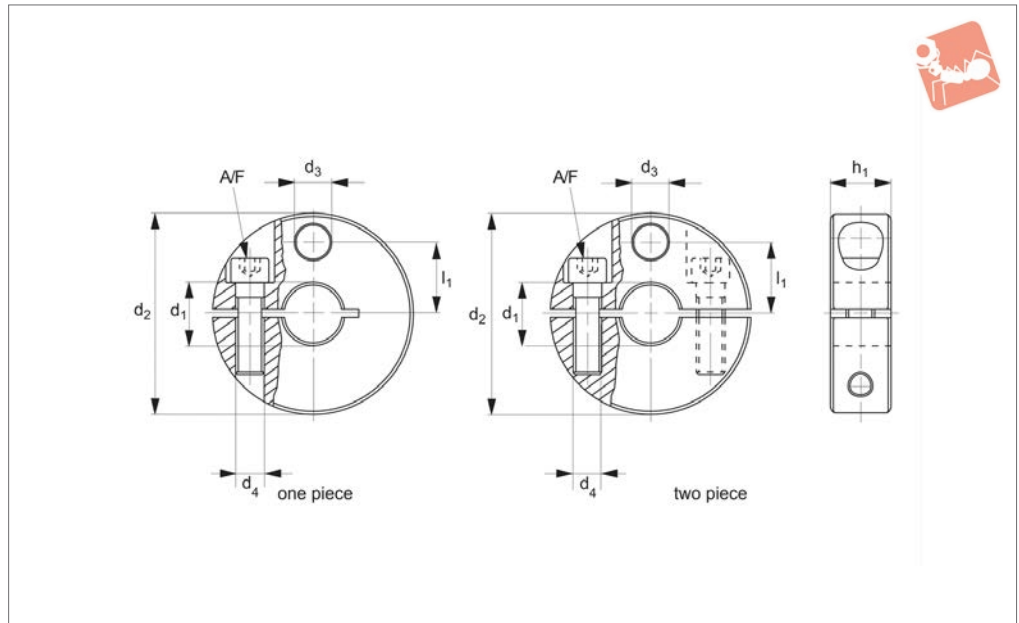


Set Collars

Order No.	Material	d_1 tol. H10	d_2	d_3	h_1	A/F	Stroke s_1 max.	Weight g
38624.W0335	Stainless	35	60	M 6	15	5	0.4	170
38624.W0340	Stainless	40	65	M 6	15	5	0.5	189



38650



Material

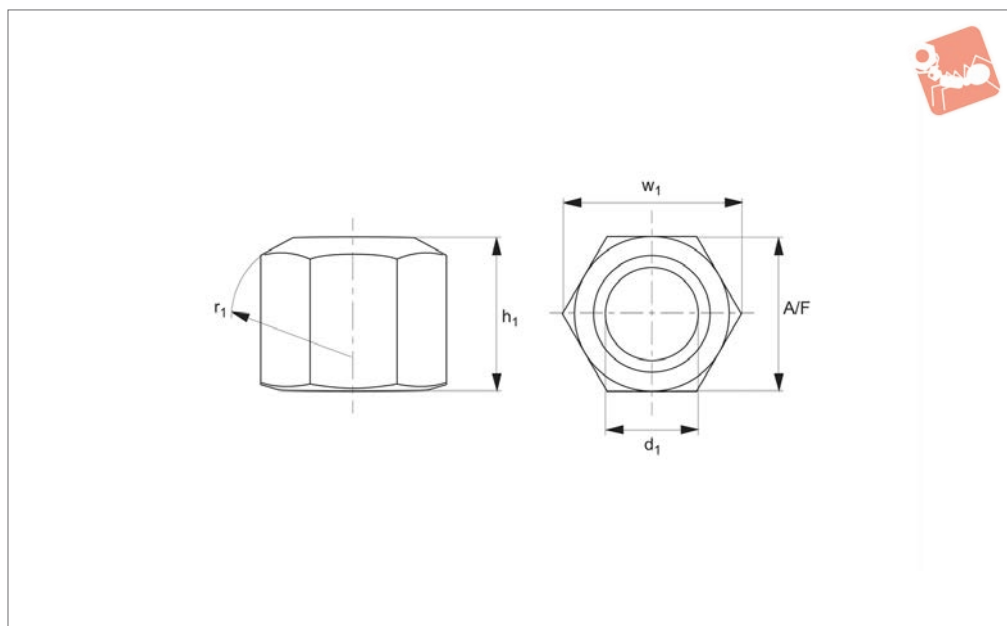
Set collar and screw: stainless steel (AISI 420, 1.4021).

Technical Notes

Clamping ring made of stainless steel with

strong clamping force. Available in two versions, slotted (one piece) and divided (two piece). Clamping rings with $d_1 > 10\text{mm}$ supplied with fixing hole (d_3) for the mounting of sensors, switches etc.

Order No.	Type	d_1 tol. H8	d_2 -0.5	d_3	d_4	l_1	h_1	A/F	Weight g
38650.W0010	One piece	10	40	6.5	M 5	14.5	12	4	99
38650.W0012	One piece	12	40	6.5	M 5	14.5	12	4	94
38650.W0014	One piece	14	45	9.0	M 6	16.5	13	5	125
38650.W0015	One piece	15	45	9.0	M 6	16.5	13	5	122
38650.W0016	One piece	16	45	9.0	M 6	16.5	13	5	120
38650.W0018	One piece	18	50	9.0	M 6	18.5	13	5	151
38650.W0020	One piece	20	50	9.0	M 6	18.5	13	5	144
38650.W0022	One piece	22	65	13.0	M 8	23.5	18	6	359
38650.W0024	One piece	24	65	13.0	M 8	23.5	18	6	349
38650.W0025	One piece	25	65	13.0	M 8	23.5	18	6	345
38650.W0030	One piece	30	75	13.0	M 8	27.0	20	6	108
38650.W0032	One piece	32	80	13.0	M 8	30.0	20	6	588
38650.W0035	One piece	35	80	13.0	M 8	30.0	20	6	566
38650.W0110	Two piece	10	40	6.5	M 5	14.5	12	4	94
38650.W0112	Two piece	12	40	6.5	M 5	14.5	12	4	90
38650.W0114	Two piece	14	45	9.0	M 6	16.5	13	5	114
38650.W0115	Two piece	15	45	9.0	M 6	16.5	13	5	112
38650.W0116	Two piece	16	45	9.0	M 6	16.5	13	5	110
38650.W0118	Two piece	18	50	9.0	M 6	18.5	13	5	142
38650.W0120	Two piece	20	50	9.0	M 6	18.5	13	5	139
38650.W0122	Two piece	22	65	13.0	M 8	23.5	18	6	341
38650.W0124	Two piece	24	65	13.0	M 8	23.5	18	6	330
38650.W0125	Two piece	25	65	13.0	M 8	23.5	18	6	330
38650.W0130	Two piece	30	75	13.0	M 8	27.0	20	6	488
38650.W0132	Two piece	32	80	13.0	M 8	30.0	20	6	564
38650.W0135	Two piece	35	80	13.0	M 8	30.0	20	6	542



24300

NUTS

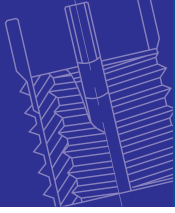
Material

Steel, heat treated.
Tensile strength class 10.

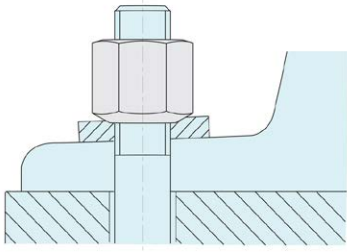
Technical Notes

Produced to DIN 6330B.

Order No.	d_1	w_1	$h_1 = 1,5 \times d_1$	r_1	A/F	Weight g
24300.W0106	M 6	11.1	9	9	10	5
24300.W0108	M 8	14.4	12	12	13	9
24300.W0110	M10	17.8	15	15	16	14
24300.W0111	M10	18.9	15	15	17	20
24300.W0112	M12	20.0	18	17	18	20
24300.W0113	M12	21.1	18	17	19	28
24300.W0114	M14	23.4	21	20	21	34
24300.W0115	M14	24.5	21	20	22	45
24300.W0116	M16	26.8	24	22	24	58
24300.W0118	M18	30.1	27	24	27	83
24300.W0120	M20	33.5	30	27	30	110
24300.W0122	M22	37.7	33	30	34	185
24300.W0123	M22	35.7	33	30	32	130
24300.W0124	M24	40.0	36	32	36	195
24300.W0127	M27	45.6	40	36	41	280
24300.W0130	M30	51.3	45	41	46	405
24300.W0136	M36	61.3	54	50	55	715
24300.W0142	M42	72.6	63	58	65	1170
24300.W0148	M48	83.9	72	67	75	1800



NUTS



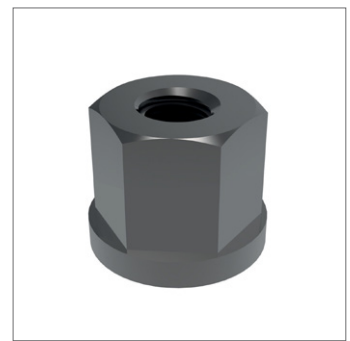
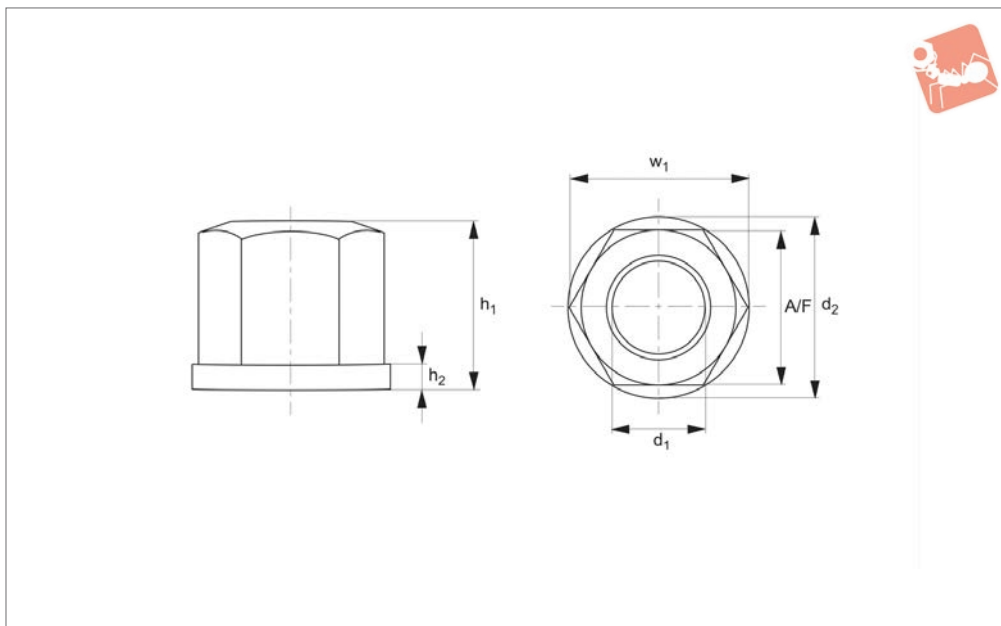


Collar Nuts

strength class 10



Nuts



24400

NUTS

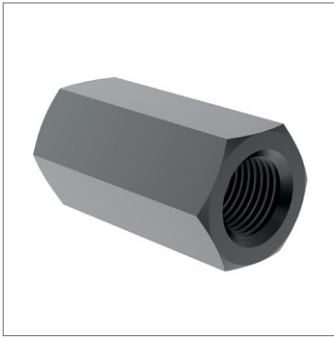
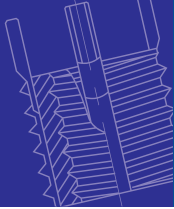
Material

Steel, heat treated. Tensile strength class 10. Turned and milled.

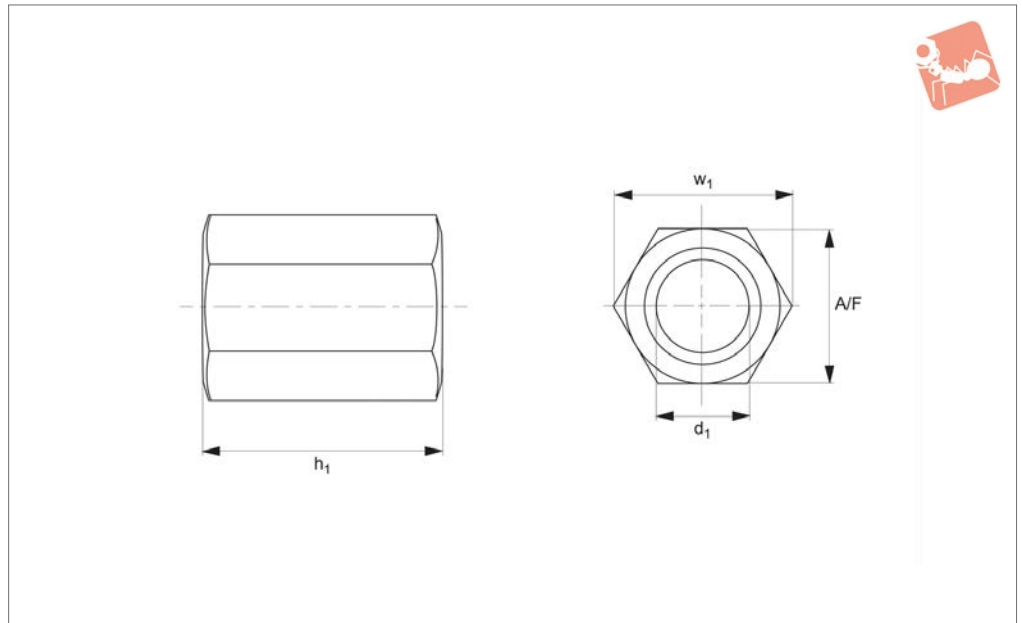
Technical Notes

Produced to DIN 6331.

Order No.	d_1	w_1	$h_1 = 1,5 \times d_1$	d_2	h_2	A/F	Weight g
24400.W0106	M 6	11.1	9	14	3.0	10	6
24400.W0108	M 8	14.4	12	18	3.5	13	12
24400.W0110	M10	17.8	15	22	4.0	16	21
24400.W0111	M10	18.9	15	22	4.0	17	25
24400.W0112	M12	20.0	18	25	4.0	18	30
24400.W0113	M12	21.1	18	25	4.0	19	36
24400.W0114	M14	23.4	21	28	4.5	21	43
24400.W0115	M14	24.5	21	28	4.5	22	51
24400.W0116	M16	26.8	24	31	5.0	24	70
24400.W0118	M18	30.1	27	34	5.0	27	95
24400.W0120	M20	33.5	30	37	6.0	30	130
24400.W0122	M22	37.7	33	40	6.0	34	200
24400.W0123	M22	35.7	33	40	6.0	32	160
24400.W0124	M24	40.0	36	45	6.0	36	230
24400.W0127	M27	45.6	40	50	8.0	41	320
24400.W0130	M30	51.3	45	58	8.0	46	470
24400.W0136	M36	61.3	54	68	10.0	55	800
24400.W0142	M42	72.6	63	80	12.0	65	1340
24400.W0148	M48	83.9	72	92	14.0	75	2040



24600



Material

Steel heat-treated.
Tensile strength class 10.

Technical Notes

Produced to DIN 6334.

Used for joining T-bolts and studs together. For safety the T-bolts/studs should be screwed half the length of the coupling nut either side. Minimum screwed in thread length should be 1 x diameter.

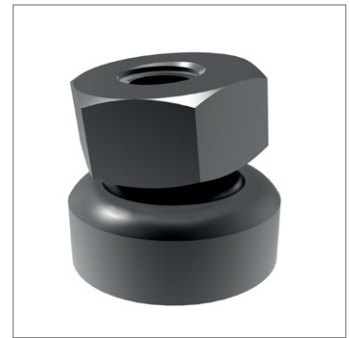
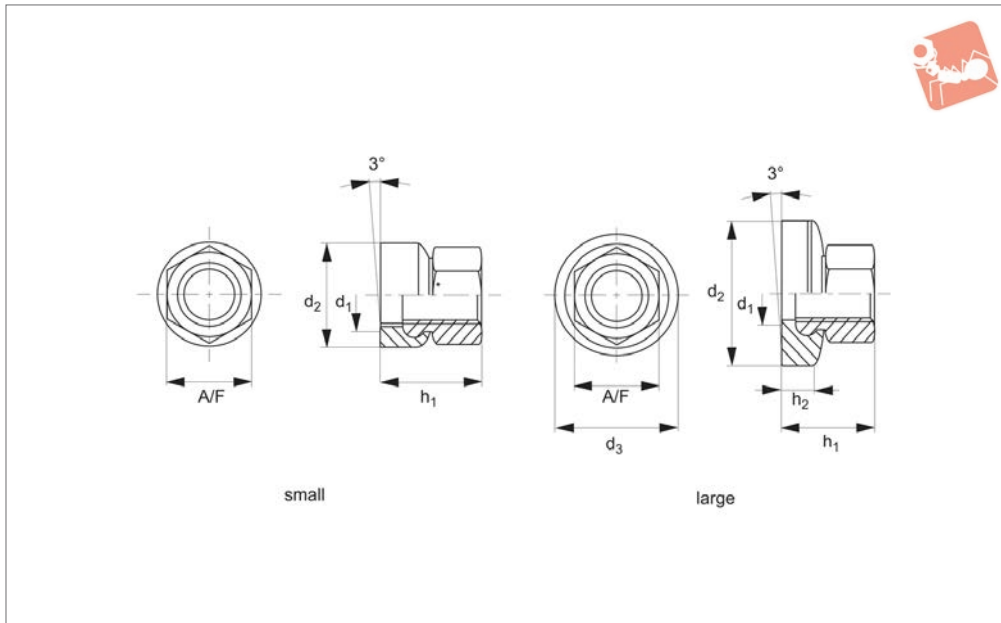
Order No.	d ₁	w ₁	h ₁ = 3 x d ₁	A/F	Weight g
24600.W0106	M 6	11.1	18	10	8
24600.W0108	M 8	14.4	24	13	19
24600.W0110	M10	17.8	30	16	30
24600.W0112	M12	20.0	36	18	48
24600.W0114	M14	23.4	42	21	73
24600.W0116	M16	26.8	48	24	120
24600.W0118	M18	30.1	54	27	170
24600.W0120	M20	33.5	60	30	240
24600.W0122	M22	37.7	66	34	390
24600.W0124	M24	40.0	72	36	400
24600.W0127	M27	45.6	81	41	600
24600.W0130	M30	51.3	90	46	850
24600.W0136	M36	61.3	108	55	1470
24600.W0142	M42	72.6	126	65	2340
24600.W0148	M48	83.9	144	75	3600



Swivel Nuts conical seat



Nuts



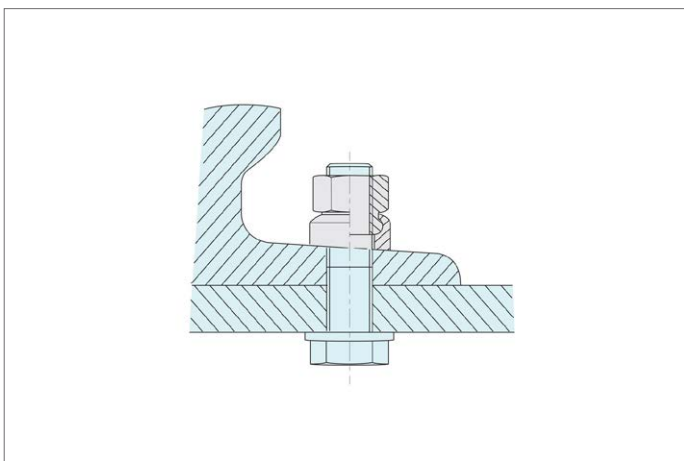
24620

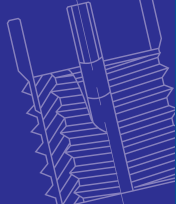
NUTS

Material

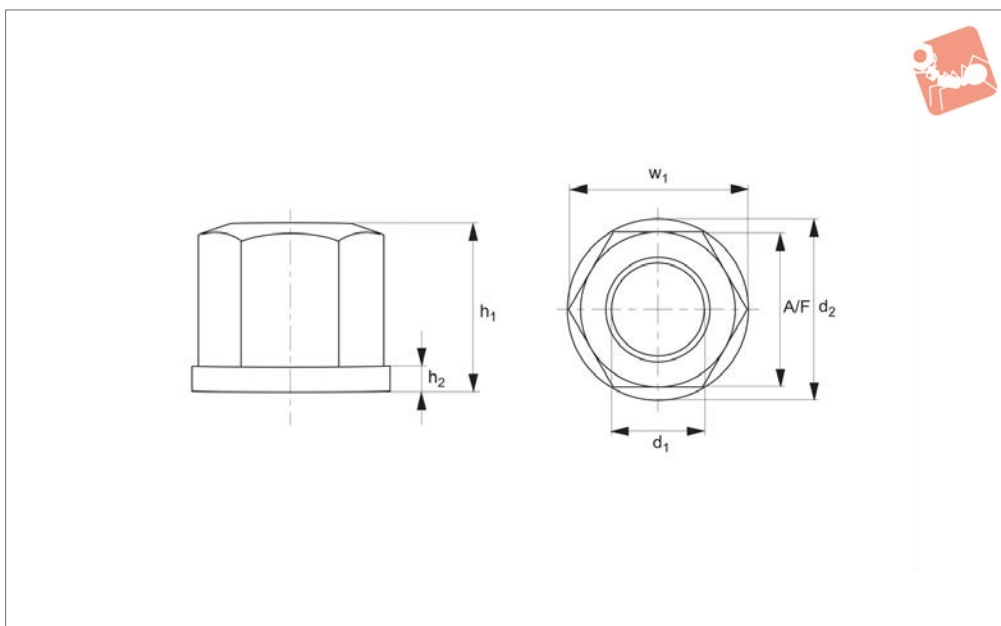
Steel, heat-treated steel, tempered, blackened.

Order No.	Type	d ₁	h ₁	d ₂	d ₃	h ₂	A/F	Weight g
24620.W0508	Small	M 8	14.0	17	-	-	13	13
24620.W0510	Small	M10	17.5	21	-	-	16	24
24620.W0512	Small	M12	21.5	24	-	-	18	38
24620.W0516	Small	M16	28.0	30	-	-	24	75
24620.W0520	Small	M20	35.0	36	-	-	30	143
24620.W0524	Small	M24	42.5	44	-	-	36	261
24620.W0530	Small	M30	56.0	55	-	-	46	557
24620.W0608	Large	M 8	14.0	24	17.8	4.0	13	13
24620.W0610	Large	M10	17.5	30	21.2	5.5	16	16
24620.W0612	Large	M12	21.5	36	25.2	7.0	18	18
24620.W0616	Large	M16	28.0	44	30.9	8.0	24	24
24620.W0620	Large	M20	35.0	50	39.9	9.5	30	30
24620.W0624	Large	M24	42.5	60	49.6	11.0	36	36
24620.W0630	Large	M30	56.0	68	61.3	14.0	40	40





24420



Material

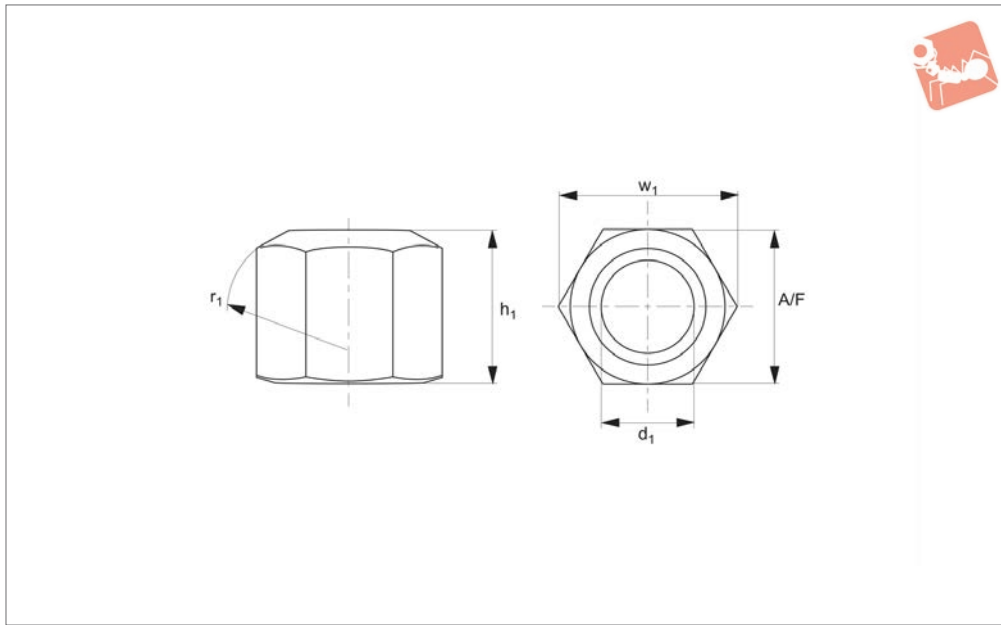
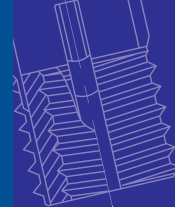
Stainless steel (AISI 303, 1.4305).

*DIN standards do not include these dimensions.

Technical Notes

Produced to DIN 6331.

Order No.	d ₁	d ₂	h ₁	h ₂	w ₁	A/F	Weight g
24420.W0108	M 8	18	12	3.5	15.0	13	12
24420.W0110	M10	22	15	4.0	18.5	17*	22
24420.W0112	M12	25	18	4.0	20.8	19*	30
24420.W0116	M16	31	24	5.0	27.7	24	67
24420.W0120	M20	37	30	6.0	34.6	30	129



24320

NUTS

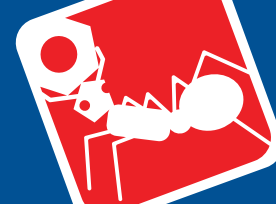
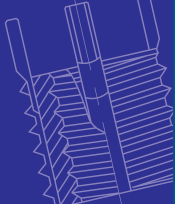
Material

Stainless steel (AISI 303, 1.4305).

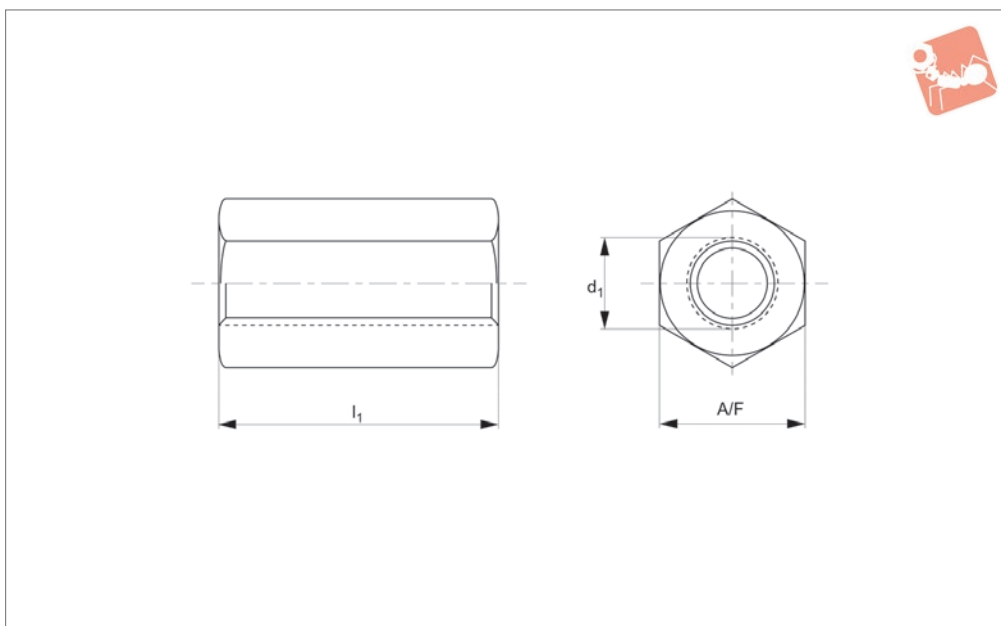
Technical Notes

Produced to DIN 6330B.

Order No.	d_1	h_1	r_1	w_1	A/F	Weight g
24320.W0106	M 6	9	9	11.5	10	4
24320.W0108	M 8	12	11	15.0	13	8
24320.W0110	M10	15	15	18.5	17	17
24320.W0112	M12	18	17	20.8	19	24
24320.W0116	M16	24	22	27.7	24	55
24320.W0120	M20	30	27	34.6	30	110



24602



Material

Stainless steel (A2 & A4)

Order No.	d_1	l_1	A/F	Material
24602.W2006	M 6	20	10	A2 s/s
24602.W2008	M 8	25	13	A2 s/s
24602.W2010	M10	30	17	A2 s/s
24602.W2012	M12	35	19	A2 s/s
24602.W2016	M16	40	24	A2 s/s
24602.W2020	M20	50	30	A2 s/s
24602.W2024	M24	50	36	A2 s/s
24602.W4006	M 6	20	10	A4 s/s
24602.W4008	M 8	25	13	A4 s/s
24602.W4010	M10	30	17	A4 s/s
24602.W4012	M12	35	19	A4 s/s
24602.W4016	M16	40	24	A4 s/s
24602.W4020	M20	50	30	A4 s/s
24602.W4024	M24	50	36	A4 s/s

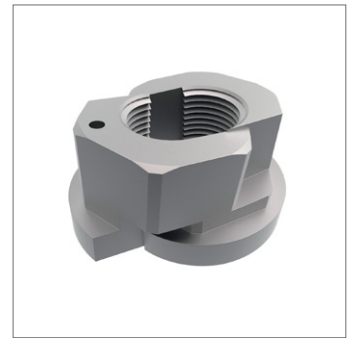
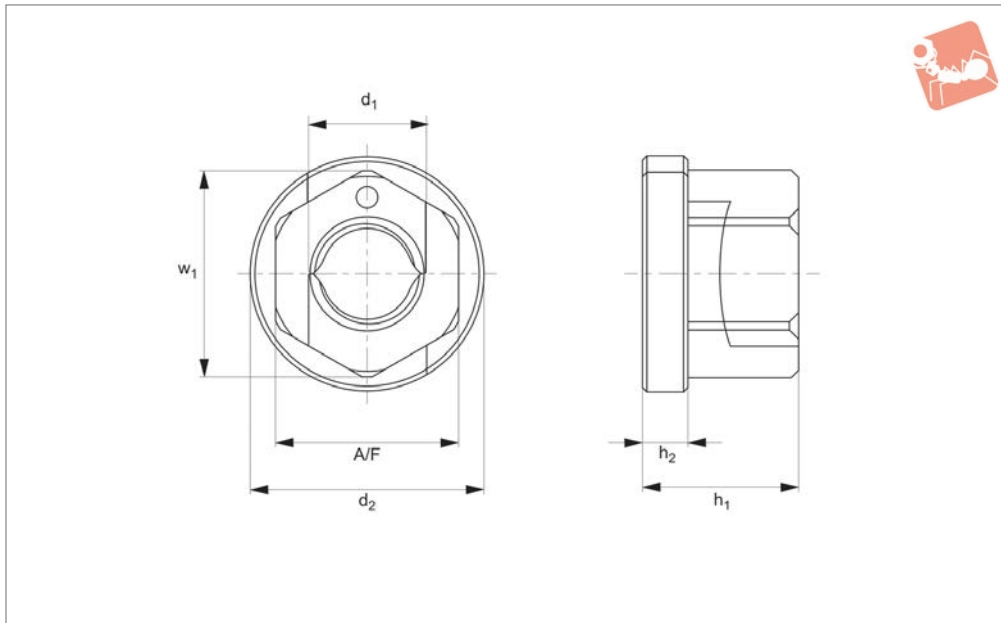


Fast Nut - With Collar

rapid assembly nut



Nuts



24502

NUTS

Material

Steel, heat treated.

Technical Notes

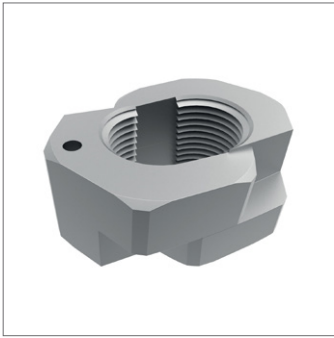
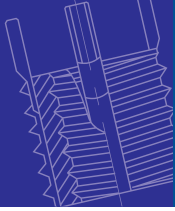
For rapid mounting and dismounting of nuts over long or damaged studding, and

even a studding bent by up to 20°. Where nut components are held together and are unattachable - simply push over thread, engage and a quarter or half turn is adequate for locking.

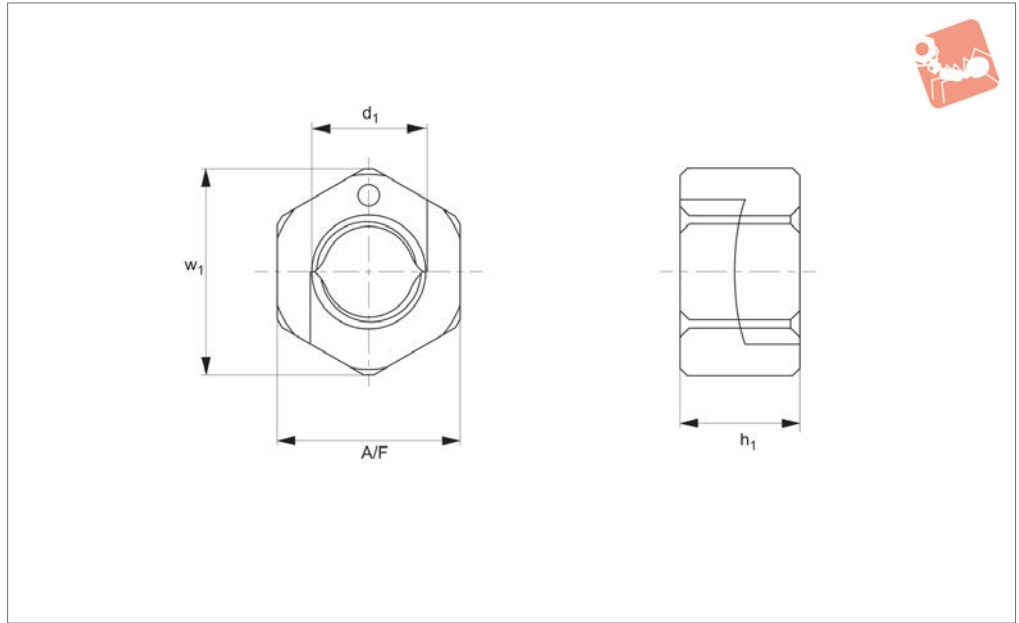
Provides clamping similar to solid nuts of the same thread size. Time saving when dealing with long or damaged studding.

Order No.	d ₁	d ₂	w ₁	h ₁	h ₂	A/F	Weight g
24502.W0106	M 6	14	11	9	3.0	10	5
24502.W0108	M 8	18	14	12	3.5	13	12
24502.W0110	M10	22	19	14	4.0	17	24
24502.W0112	M12	25	21	16	4.0	19	33
24502.W0116	M16	31	27	21	5.0	24	62
24502.W0120	M20	37	33	26	6.0	30	114
24502.W0124	M24	45	40	30	6.0	36	188





24504



Material

Steel, heat treated, zinc plated.
Strength class 10.

Technical Notes

For rapid mounting and dismounting of

nuts over long or damaged studding, and even a studding bent by up to 20°. Where nut components are held together and are unattachable - simply push over thread, engage and a quarter or half turn is

adequate for locking. Provides clamping similar to solid nuts of the same thread size. Time saving when dealing with long or damaged studding.

Order No.	d ₁	w ₁	h ₁	A/F	Weight g
24504.W0106	M 6	11	6	10	3
24504.W0108	M 8	14	8	13	6
24504.W0110	M10	19	10	17	14
24504.W0112	M12	21	12	19	20
24504.W0116	M16	27	16	24	39
24504.W0120	M20	33	20	30	75
24504.W0124	M24	40	24	36	131





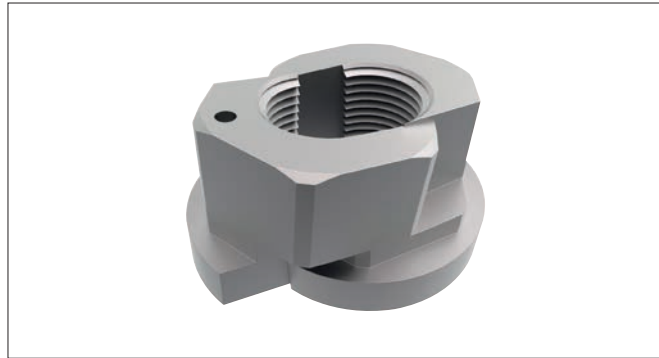
Wixroyd Fast Nut

fast assembly nut, no loss of performance

24502 - 24504

Fixing Elements

The Fast Nut is quickly assembled, simply pull apart the segments to open - slide nut over thread to required location. Push the two threaded segments together to engage on thread. Lock the nut in place with a simple quarter to half turn of a standard spanner.



- There are no problems if the top of a threaded rod is damaged, the Fast Nut can slip over the damaged section.
- There are no issue of cross threading.
- Easy assembly in confined spaces.
- Flexibility to leave clamping to the last moment.

Quick Fastening

Ease the nut off a quarter turn with a spanner, unlock the Fast Nut and remove from the thread.

Disassembly

- For quick release and disassembly of the nut simply pull apart the nut casing to release.
- Zinc plated for a degree of rust protection.
- The Fast Nut simply slips over a rusted or paint covered thread to the fixing area.
- No issue of thread seizing.
- Time saving, yet just as high holding force!
- Can slip over damaged or bent studding up to an angle of approx. 20°.

Quick Release

- M6, M8, M10, M12, M16, M20, M24.

Available Sizes

- Construction industry.
- Temporary buildings, scaffolding.
- Automotive.
- Flange and instrument fittings.
- Jig and fixture builds.
- Mechanical applications.

Applications

- Up to 50% faster assembly and disassembly (up to 500% in difficult and confined environments).
- One piece, so individual parts can't be lost
- Maintenance free and re-usable.
- Corrosion resistant, ideal for outdoors.

Saving Time, Effort and Cost

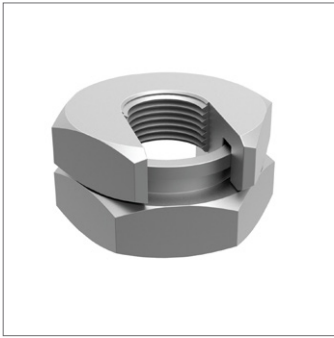
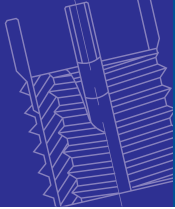
- Two part construction, with parts retained (und detachable).
- Tempering and surface protection to DIN/ISO standards as for a normal nut.
- Thread interference up to 180% of a standard nut.
- No need for a special spanner.

Technical Data

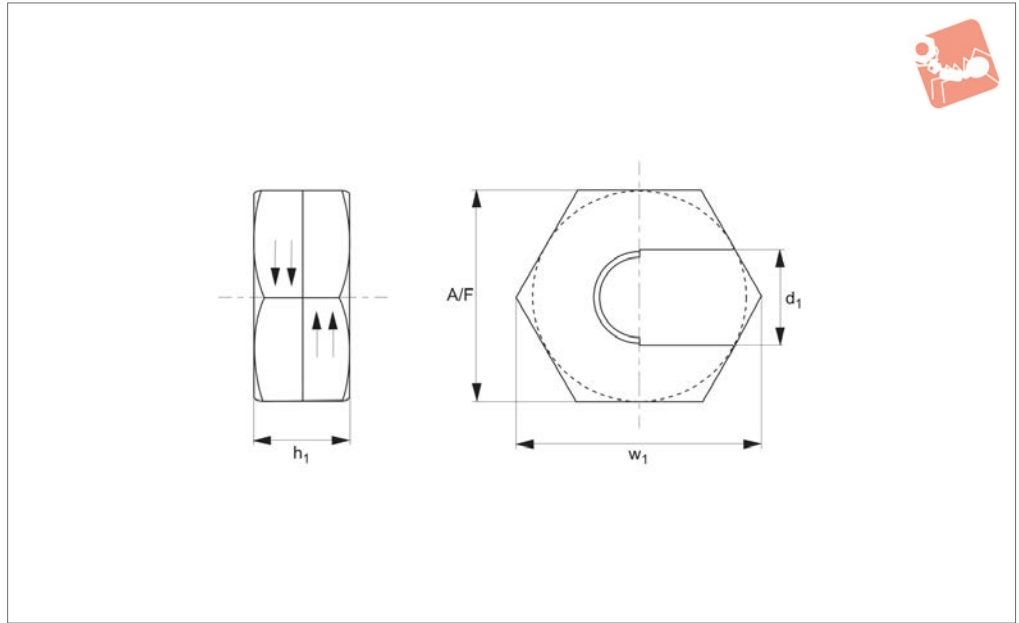
- Heat treated steel, zinc plated.
- Strength class 10 = 1060 N/mm².
- Temperature resistant to +150°C.

Material





24520



Material

Steel, strength class 6, hardened and zinc plated.
Coarse thread.

Technical Notes

Avoid time consuming winding & unwinding on long threads and overcome issues of damaging threads. The slip-on lock nut is easy to position at any point on a thread. Just open the lock nut, position where required, twist the lock nut closed and tighten with a spanner. Still with high load

forces. Safety factor of 2.5 times in load recommendations. Tested from 5 to 2000 Hz over a 10 minute period with no evidence of loosening.

Order No.	d ₁	w ₁	h ₁	A/F	Load kN max.	Torque to Nm max.	Weight g
24520.W0106	M 6	18.2	9.5	16	2.9	8-11	9
24520.W0108	M 8	22.0	9.5	19	-	18-25	15
24520.W0110	M10	25.7	12.4	22	8.9	26-34	25
24520.W0112	M12	31.1	15.9	27	17.8	68-81	45
24520.W0114	M14	31.1	15.9	27	17.8	68-81	45
24520.W0116	M16	38.5	16.5	33	22.2	136-271	71
24520.W0118	M18	38.5	16.5	33	22.2	136-271	71
24520.W0120	M20	47.7	20.3	41	35.6	244-271	141
24520.W0122	M22	58.6	25.4	51	-	-	259
24520.W0124	M24	58.6	25.4	51	-	-	249



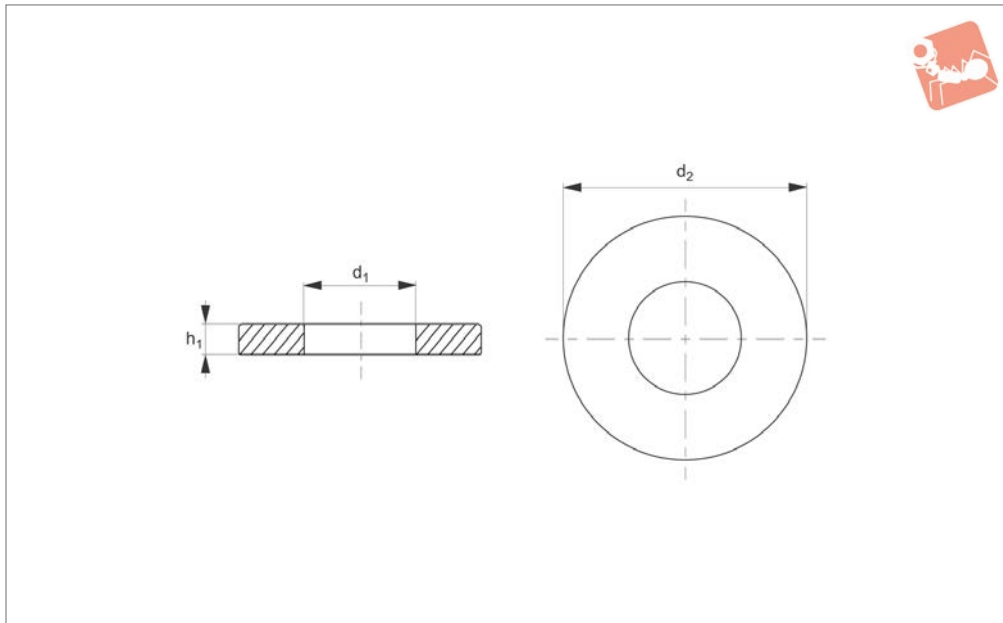


Plain Washers

steel



Washers



25000

WASHERS

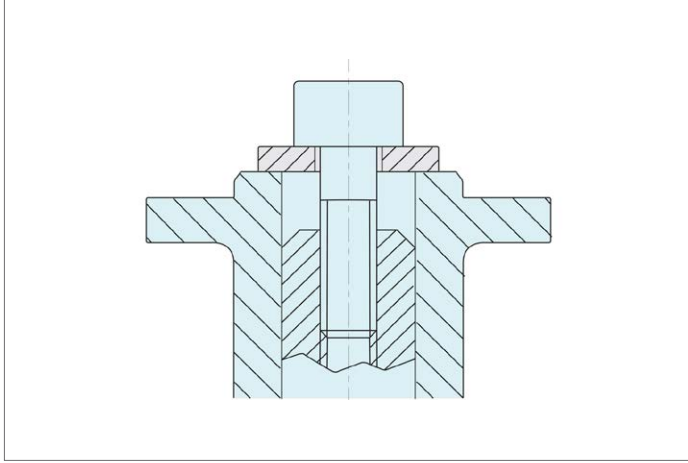
Material

Tempered steel (350+80 HV30), (1200-1400N/mm² tensile strength).

Technical Notes

Produced to DIN 6340.

Order No.	For thread	For thread inch	d ₁	d ₂	h ₁	Weight g
25000.W0106	M 6	1/4"	6.4	17	3	5
25000.W0108	M 8	5/16"	8.4	23	4	10
25000.W0110	M10	3/8"	10.5	28	4	16
25000.W0112	M12	1/2"	13.0	35	5	35
25000.W0114	M14	-	15.0	40	5	40
25000.W0116	M16	5/8"	17.0	45	6	60
25000.W0118	M18	-	19.0	45	6	60
25000.W0120	M20	3/4"	21.0	50	6	73
25000.W0122	M22	7/8"	23.0	50	8	92
25000.W0124	M24	7/8"	25.0	60	8	170
25000.W0127	M27	1-1/16"	28.0	68	10	210
25000.W0130	M30	1-1/8", 1-3/16"	31.0	68	10	230
25000.W0136	M36	1-1/4", 1-3/8"	38.0	80	10	350
25000.W0142	M42	1-1/2"	44.0	100	15	670
25000.W0148	M48	1-3/4"	50.0	108	17	920

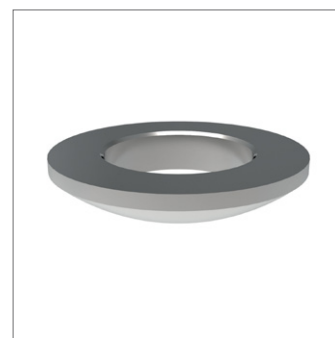
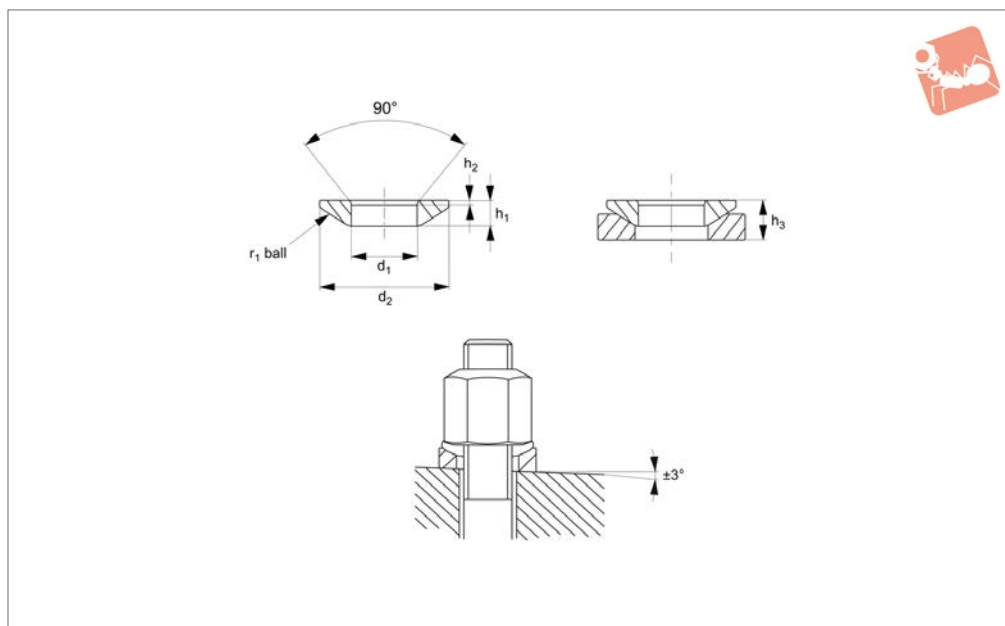




Washers - Spherical Seat type C



Washers



25100

WASHERS

Material

Steel, case-hardened.

Technical Notes

Produced to DIN 6319C.

Used with dished washers no. 25400 (type

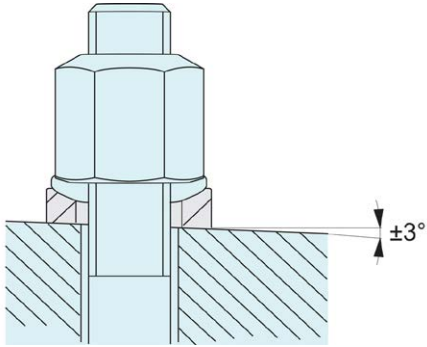
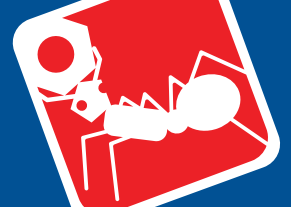
D) and no. 25700 (type G). Dimensions marked * not available in DIN standard.

Tips

When clamping over holes or slots which do not provide full surface contact to the

washer, only use no. 25100 in combination with washer no. 25700 (type G). Do not use in combination with no. 25400 (type D) in such situations.

Order No.	For thread	For thread inch	d ₁ tol. H13	d ₂	h ₁	h ₂	r ₁	Load capacity for static load kN max.	With 25400 h ₃	With 25700 h ₃	Weight g
25100.W0106	M 6	1/4"	6,4	12	2,3	0,7	9,0	9	4,2	5,4	1
25100.W0108	M 8	5/16"	8,4	17	3,2	0,6	12,0	17	5,6	7,1	3
25100.W0110	M10	3/8"	10,5	21	4,0	0,8	15,0	26	6,5	7,3	5
25100.W0112	M12	1/2"	13,0	24	4,6	1,1	17,0	38	8,0	9,0	8
25100.W0114	M14		15,0	28	5,0	1,4	22,0	53	8,5	9,5	12
25100.W0116	M16	5/8"	17,0	30	5,3	1,3	22,0	73	9,6	10,4	13
25100.W0120	M20	3/4"	21,0	36	6,3	2,0	27,0	117	11,7	12,2	23
25100.W0122	M22	7/8"	23,0*	40	7,6	2,5	29,5	146	13,5		34
25100.W0124	M24	7/8"	25,0	44	8,2	2,4	32,0	168	15,2	15,7	45
25100.W0127	M27	1 1/16"	28,0*	50	10,2	3,3	36,0	221	17,0		74
25100.W0130	M30	1-1/8", 1-3/16"	31,0	56	11,2	3,6	41,0	269	19,2	19,7	101
25100.W0133	M33		34,0*	62	13,0	4,4	45,0	326	21,8		150
25100.W0136	M36	1-1/4", 1-3/8"	37,0	68	14,0	4,6	50,0	394	23,5		190
25100.W0139	M39		40,0*	75	16,0	5,6	54,0	460	26,8		218
25100.W0142	M42	1-1/2"	43,0	78	17,0	6,5	58,0	542	29,0		310
25100.W0148	M48	1-3/4"	50,0	92	21,0	8,0	67,0	714	35,5		540
25100.W0152	M52		54,0*	96	22,0	9,3	72,0	832	38,3		620
25100.W0156	M56	2"	58,0*	103	23,0	9,8	79,0	960	39,3		760
25100.W0160	M60		62,0*	112	25,0	11,0	86,0	1122	43,6		990
25100.W0164	M64	2-1/4"	66,0*	120	27,0	12,0	93,0	1269	46,6		1220

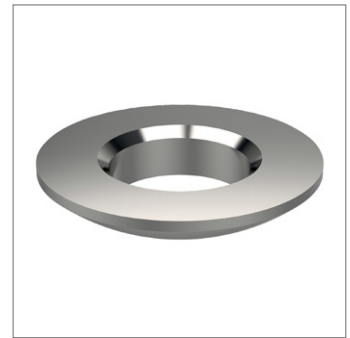
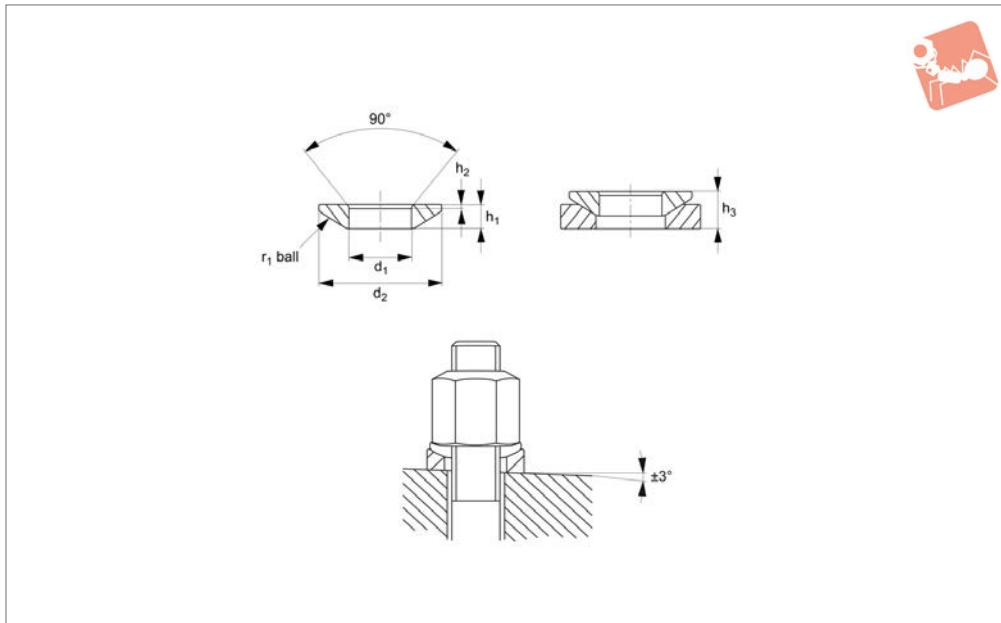




Washers - Spherical Seat stainless steel 316



Washers



25205

WASHERS

Material

Stainless steel (AISI 316, 1.4401).

Technical Notes

Similar to DIN 6319C.

Used with dished washers no. 25505 (type

D), and no. 25805 (type G).

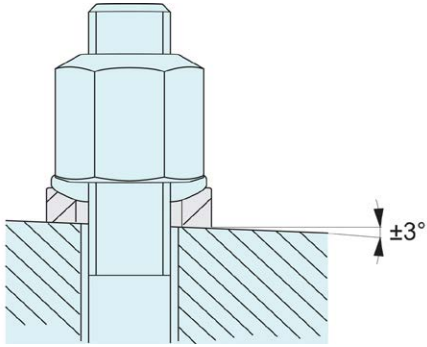
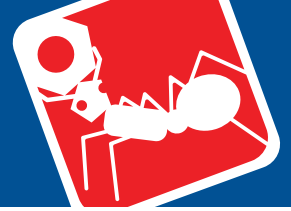
Tips

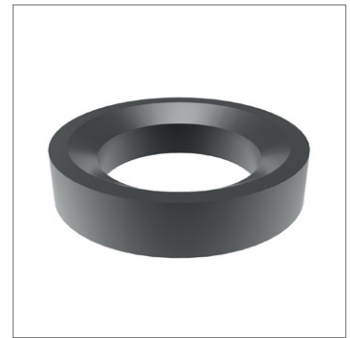
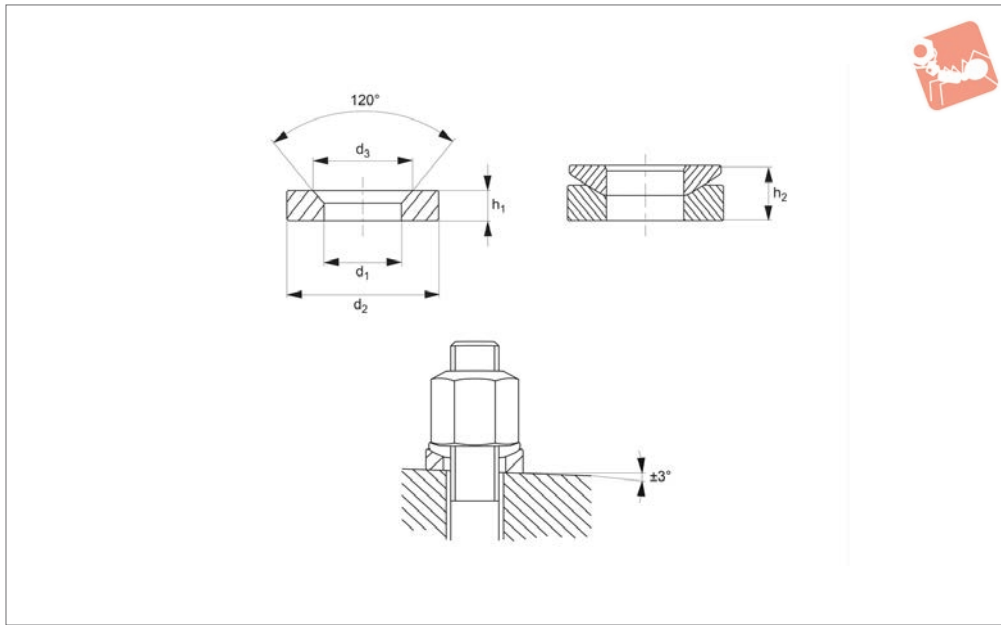
When clamping over holes or slots which do not provide full surface contact to the washer, only use no. 25205 in combination

with washer no. 25805 (type G) - do not use in combination with no. 25505 (type D) in such circumstances.

*Torques for screws A2-70 are approximate values.

Order No.	For thread	For thread inch	d ₁ tol. H13	d ₂	h ₁	h ₂	r ₁	Static load kN max.	Torque for screwed connectors Nm max.	With 25505 h ₃	With 25805 h ₃	Weight g
25205.W0306	M 6	1/4"	6,4	12	2,3	0,7	9	6	6	4,0	5,2	1
25205.W0308	M 8	5/16"	8,4	17	3,2	0,6	12	12	16	5,3	6,8	3
25205.W0310	M10	3/8"	10,5	21	4,0	0,8	15	16	32	6,3	7,1	5
25205.W0312	M12	1/2"	13,0	24	4,6	1,1	17	24	56	7,9	8,9	8
25205.W0316	M16	5/8"	17,0	30	5,3	1,3	22	45	135	9,3	10,1	13
25205.W0320	M20	3/4"	21,0	36	6,3	2,0	27	71	280	11,6	12,1	23
25205.W0324	M24	7/8"	25,0	44	8,2	2,4	32	105	455	14,9	15,4	46
25205.W0330	M30	1-1/8", 1-3/16"	31,0	56	11,2	3,6	41	191	1050	18,8	18,8	104
25205.W0336	M36	1-1/4", 1-3/8"	37,0	68	14,0	4,6	50			23,4		193
25205.W0342	M42	1-1/2"	43,0	78	17,0	6,5	58			28,3		313
25205.W0348	M48	1-3/4"	50,0	92	21,0	8,0	67			35,0		545





25400

WASHERS

Material

Steel, case-hardened.

Technical Notes

Produced to DIN 6319D.

Tips

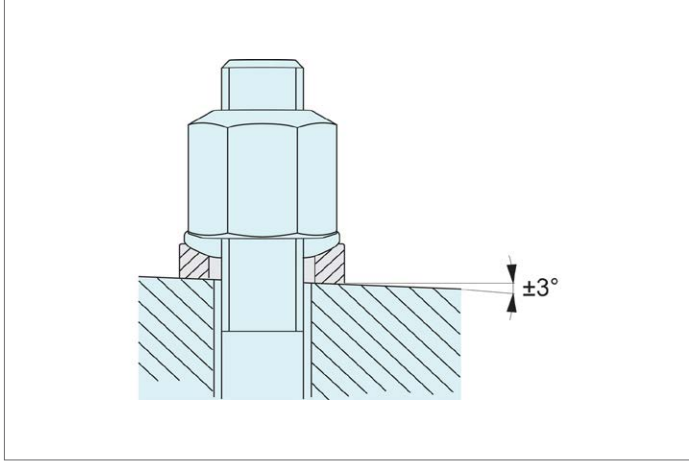
Do not use no. 25400 (type D) for clamping over holes or slots which do not provide full surface contact to the washer. In such

cases use no. 25700 (type G). Dimensions marked * not available in DIN standard.

Order No.	For thread	For thread inch	d ₁ tol. H13	d ₂	d ₃	h ₁	Load capacity for static load kN max.	With 25100 h ₃	Weight g
25400.W0106	M 6	1/4"	7.1	12	11.0	2.8	9	4.2	1
25400.W0108	M 8	5/16"	9.6	17	14.5	3.5	17	5.6	2
25400.W0110	M10	3/8"	12.0	21	18.5	4.2	26	6.5	7
25400.W0112	M12	1/2"	14.2	24	20.0	5.0	38	8.0	10
25400.W0114	M14	-	16.5	28	24.8	5.6	53	-	15
25400.W0116	M16	5/8"	19.0	30	26.0	6.2	73	9.6	18
25400.W0120	M20	3/4"	23.2	36	31.0	7.5	117	11.7	30
25400.W0122	M22	-	26,0*	40	34.0	8.5	146	-	44
25400.W0124	M24	7/8"	28.0	44	37.0	9.5	168	15.2	61
25400.W0127	M27	-	31,5*	50	43.0	10.5	221	-	90
25400.W0130	M30	1-1/8", 1-3/16"	35.0	56	49.0	12.0	269	19.2	124
25400.W0133	M33	-	38,5*	62	55.0	14.0	326	-	180
25400.W0136	M36	1-1/4", 1-3/8"	42.0	68	60.0	15.0	394	23.5	230
25400.W0139	M39	-	45,0*	75	67.0	17.0	460	-	339
25400.W0142	M42	1-1/2"	49.0	78	70.0	18.0	542	29.0	360
25400.W0148	M48	1-3/4"	56.0	92	82.0	22.0	714	35.5	640
25400.W0152	M52	-	60,0*	96	85.0	24.0	832	-	740
25400.W0156	M56	-	65,0*	103	93.0	25.0	960	-	900
25400.W0160	M60	-	70,0*	112	102.0	28.0	1122	-	1165
25400.W0164	M64	-	75,0*	120	110.0	30.0	1269	-	1430



WASHERS



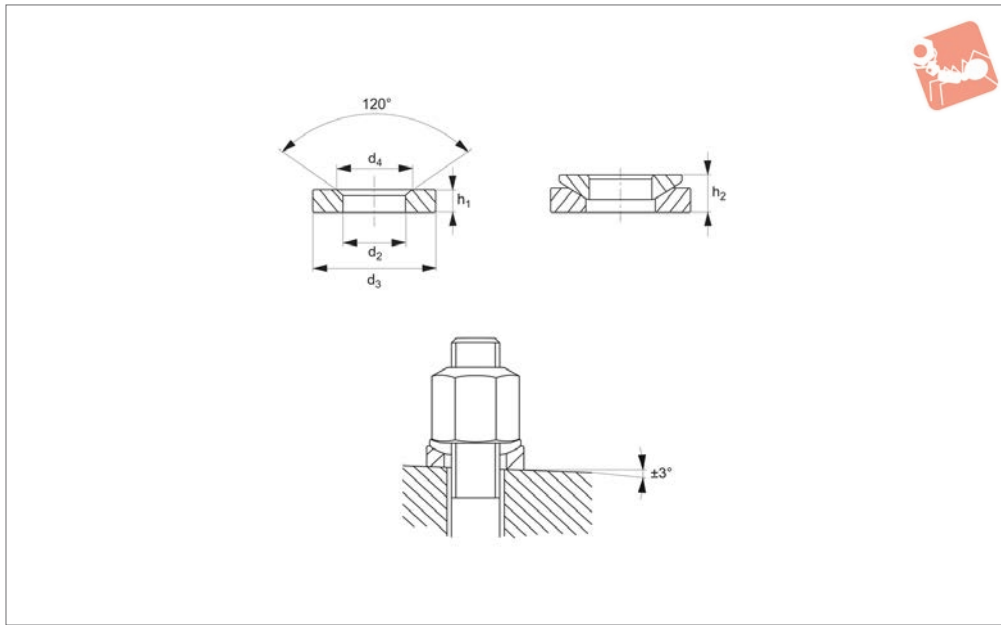


Dished Washers

stainless steel 316



Washers



25505

WASHERS

Material

Stainless steel (AISI 316, 1.4401).

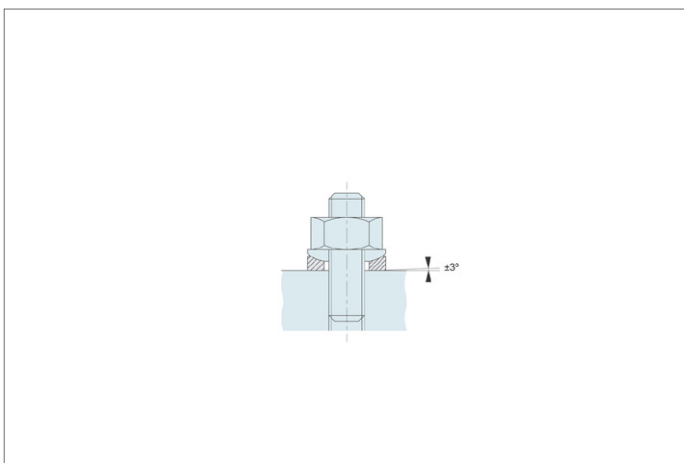
Use with spherical seat washer no. 25205 0,12. (type C). Torque values are approximate.

Technical Notes

Similar to DIN 6319D.

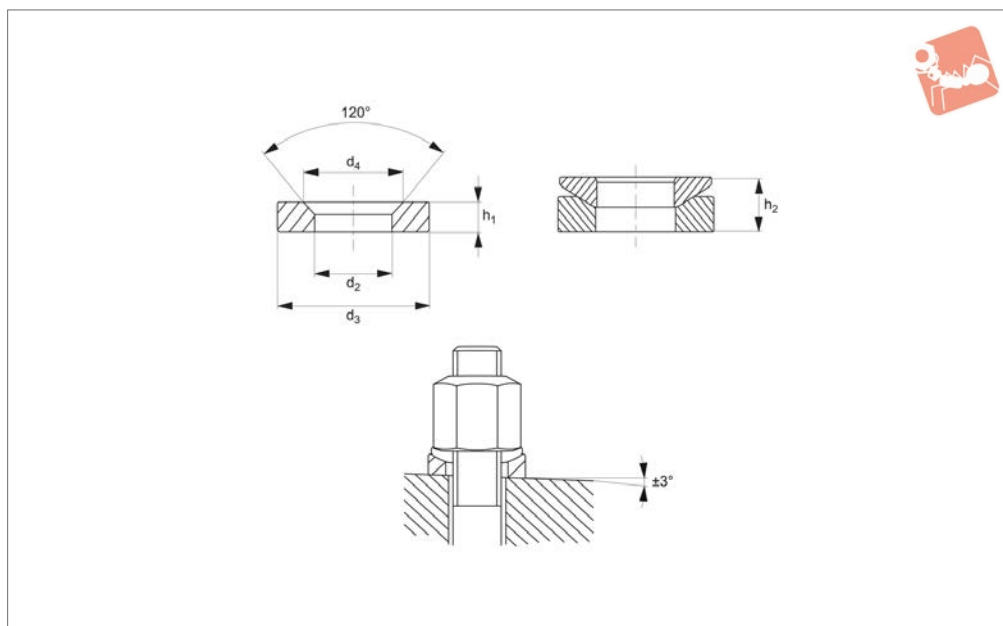
Please consider the actual preloads in your application and a coefficient of friction of

Order No.	For metric thread d ₁	For thread d ₁ inch	d ₂ tol. H13	d ₃	d ₄	h ₁	Torque Nm max.	Load capacity for static load kN max.	With 25205 h ₂	Weight g
25505.W0406	M 6	1/4"	7,1	12	11,0	2,8	6	6	4,0	1
25505.W0408	M 8	5/16"	9,6	17	14,5	3,5	16	12	5,3	4
25505.W0410	M10	3/8"	12,0	21	18,5	4,2	32	16	6,3	7
25505.W0412	M12	1/2"	14,2	24	20,0	5,0	56	24	7,9	11
25505.W0416	M16	5/8"	19,0	30	26,0	6,2	135	45	9,3	19
25505.W0420	M20	3/4"	23,2	36	31,0	7,5	280	71	11,6	32
25505.W0424	M24	7/8"	28,0	44	37,0	9,5	455	105	14,9	63
25505.W0430	M30	1-1/8", 1-3/16"	35,0	56	49,0	12,0	1050	191	18,8	127
25505.W0436	M36	1-1/4", 1-3/8"	42,0	68	60,0	15,0			23,4	234
25505.W0442	M42	1-1/2"	49,0	78	70,0	18,0			28,3	362
25505.W0448	M48	1-3/4"	56,0	92	82,0	22,0			35,0	642





25700



Material

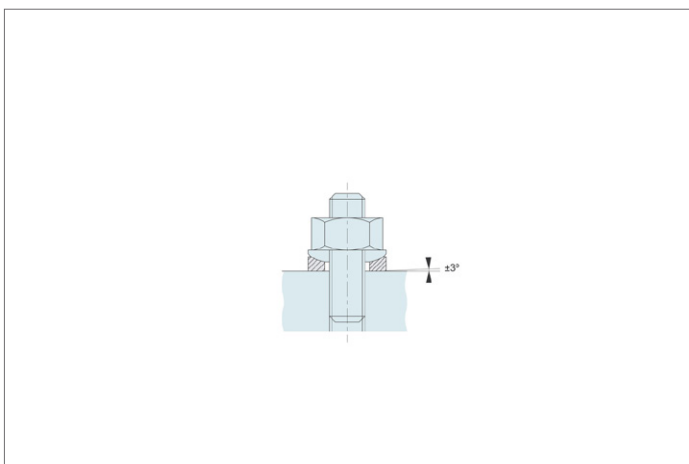
Steel, punched, trued and tempered.

Their large diameter makes them suitable to bridge the slots of clamps.

Technical Notes

Produced to DIN 6319G.

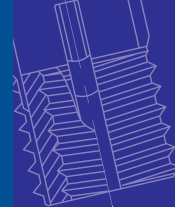
Order No.	For metric thread d ₁	For thread d ₁ inch	d ₂ tol. H13	d ₃	d ₄	h ₁	Load capacity for static load kN max.	With 25100 h ₂	Weight g
25700.W0106	M 6	1/4"	7.1	17	11.0	4	9	5.4	6
25700.W0108	M 8	5/16"	9.6	24	14.5	5	17	7.1	13
25700.W0110	M10	3/8"	12.0	30	18.5	5	26	7.3	19
25700.W0112	M12	1/2"	14.2	36	20.0	6	38	9.0	32
25700.W0114	M14	-	16.5	40	24.8	6	53	9.5	48
25700.W0116	M16	5/8"	19.0	44	26.0	7	73	10.4	56
25700.W0120	M20	3/4"	23.2	50	31.0	8	117	12.2	94
25700.W0124	M24	7/8"	28.0	60	37.0	10	168	15.7	169
25700.W0130	M30	1-1/8", 1-3/16"	35.0	68	49.0	12	269	19.7	230
25700.W0136	M36	1-1/4", 1-3/18"	42.0	80	60.0	12	394	-	350
25700.W0142	M42	1-1/2"	49.0	100	70.0	15	-	-	640
25700.W0148	M48	1-3/4"	56.0	108	82.0	17	-	-	830



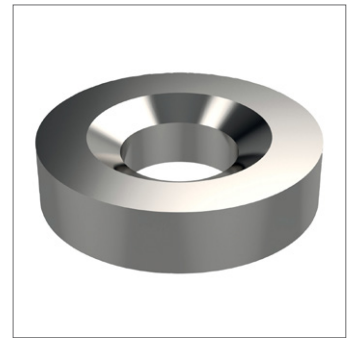
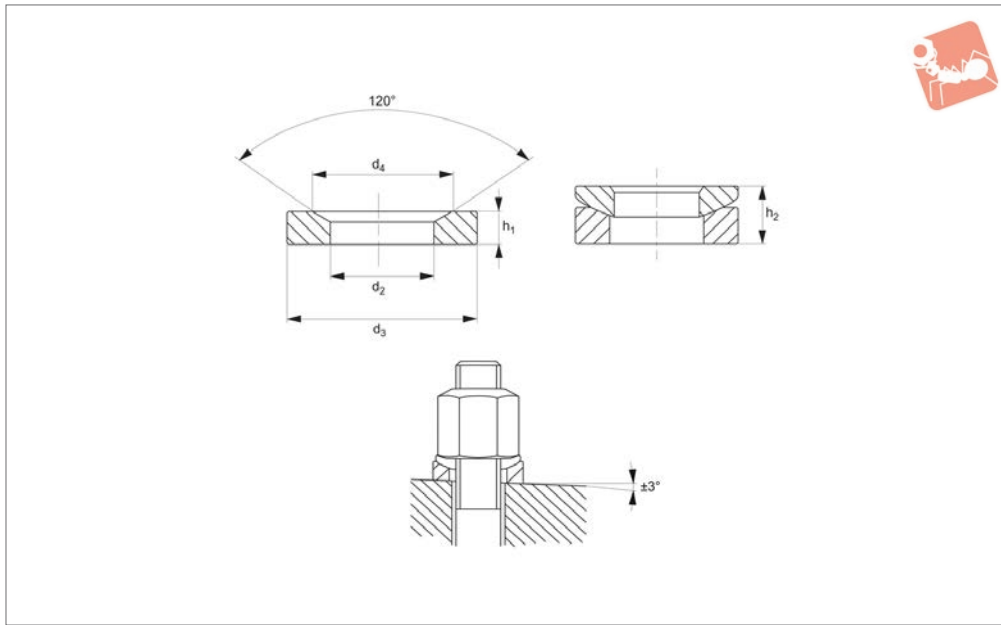


Dished Washers

stainless steel 316



Washers



25805

WASHERS

Material

Stainless steel (AISI 316, 1.4401).

Their large diameter makes them suitable to bridge wide slots.

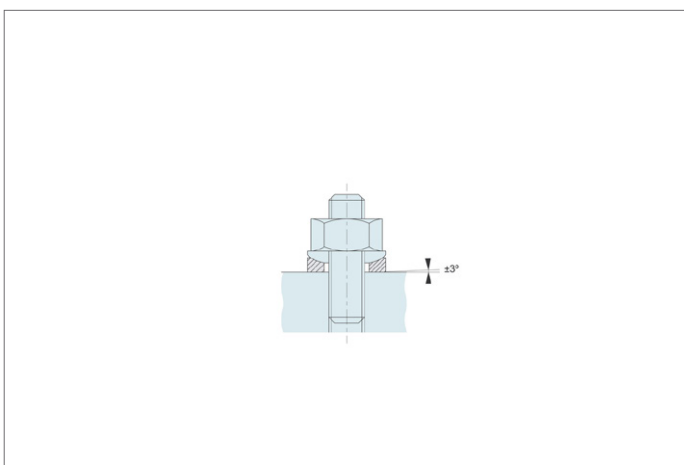
be considered, coefficient of friction μ_{total} 0,12.

Technical Notes

Produced to DIN 6319G.

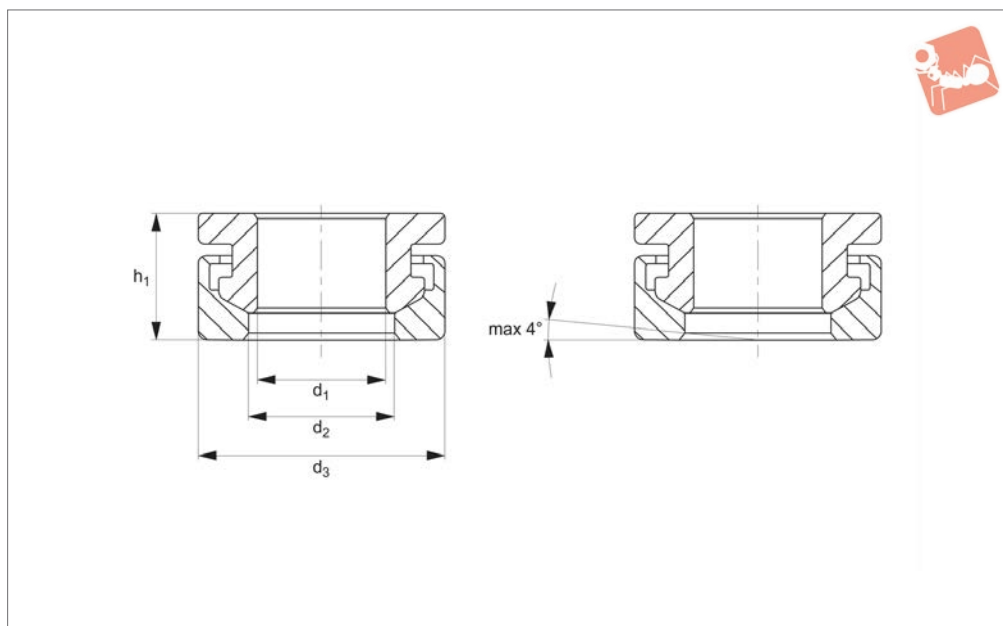
*Torque values of screwed connector A2-70 are approximate. Actual preloads should

Order No.	For metric thread d_1	For thread d_1 inch	d_2 tol. H13	d_3	d_4	h_1	Torque Nm max.	Load capacity for static load kN max.	With 25205 h_2	Weight g
25805.W0106	M 6	1/4"	7,1	17	11,0	4	6	6	5,2	6
25805.W0108	M 8	5/16"	9,6	24	14,5	5	16	12	6,8	15
25805.W0110	M10	3/8"	12,0	30	18,5	5	32	16	7,1	22
25805.W0112	M12	1/2"	14,2	36	20,0	6	56	24	8,9	40
25805.W0116	M16	5/8"	19,0	44	26,0	7	135	45	10,1	66
25805.W0120	M20	3/4"	23,2	50	31,0	8	280	71	12,1	95
25805.W0124	M24	7/8"	28,0	60	37,0	10	455	105	15,4	171
25805.W0130	M30	1-1/8", 1-3/16"	35,0	68	49,0	12	1050	191	18,8	236





25900



Material

Seat washer: steel, heat treated or stainless steel (AISI 303, 1.4305)
Spherical washer: steel, case-hardened or stainless steel (AISI 303, 1.4305)

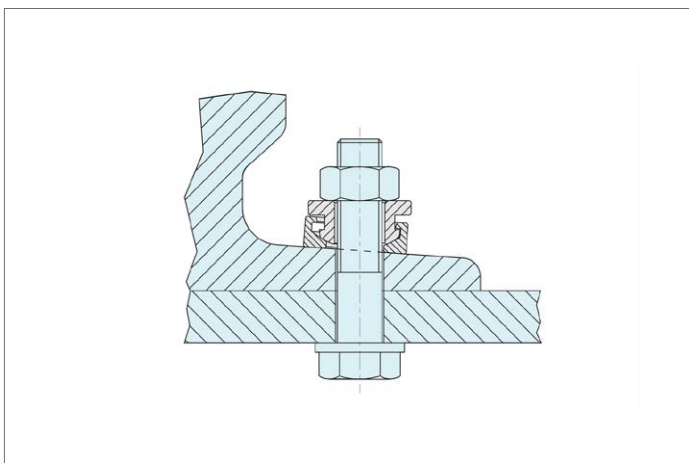
Technical Notes

Similar to DIN 6319.
A permanently fastened spherical washer and conical seat offering increased safety, quick assembly and security against loss.

Max. swivel range $\pm 4^\circ$.

***Load capacity relates to steel version only.**

Order No.	Material	For thread	d ₁ tol. H13	d ₂	d ₃	h ₁	Load kN max.	Weight g
25900.W0506	Steel	M 6	6.4	7.4	13	7.0	9	4
25900.W0508	Steel	M 8	8.4	9.7	17	8.5	17	9
25900.W0510	Steel	M10	10.5	12.0	21	10.4	26	17
25900.W0512	Steel	M12	13.0	14.8	25	13.1	38	34
25900.W0516	Steel	M16	17.0	19.7	32	17.0	73	61
25900.W0520	Steel	M20	21.0	24.6	40	20.3	117	113
25900.W0556	Stainless Steel	M 6	6.4	7.4	13	7.0	9	4
25900.W0558	Stainless Steel	M 8	8.4	9.7	17	8.5	17	9
25900.W0560	Stainless Steel	M10	10.5	12.0	21	10.4	26	17
25900.W0562	Stainless Steel	M12	13.0	14.8	25	13.1	38	34
25900.W0566	Stainless Steel	M16	17.0	19.7	32	17.0	73	61
25900.W0570	Stainless Steel	M20	21.0	24.6	40	20.3	117	113

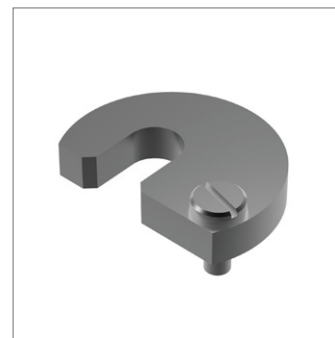
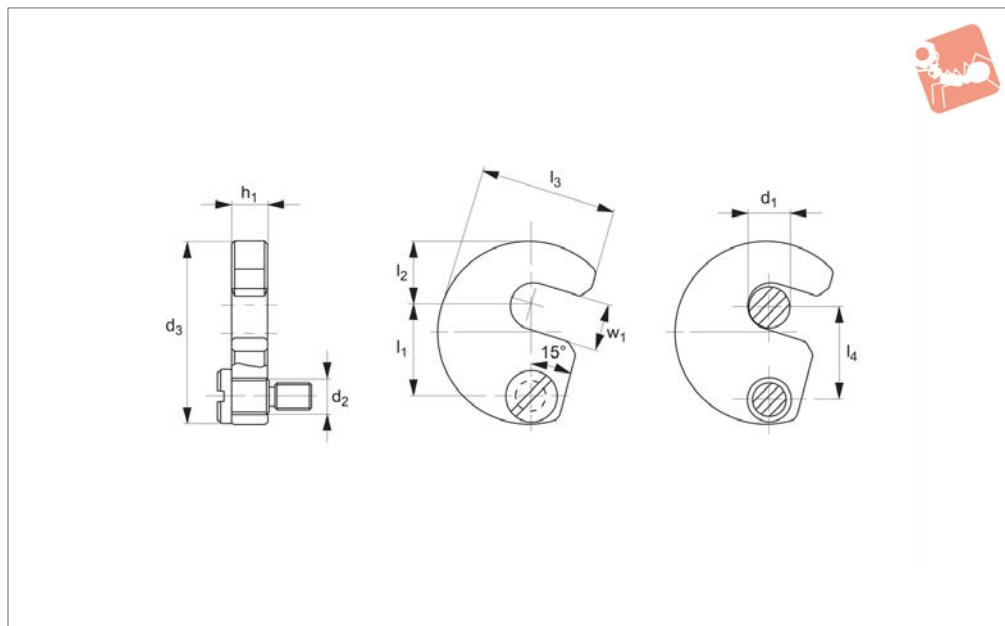




Captive C Washers shoulder bolt



Washers



36620

WASHERS

Material

Heat-treated steel (DIN 6371), blackened and tempered.

Shoulder bolt: steel, strength class 5.8,

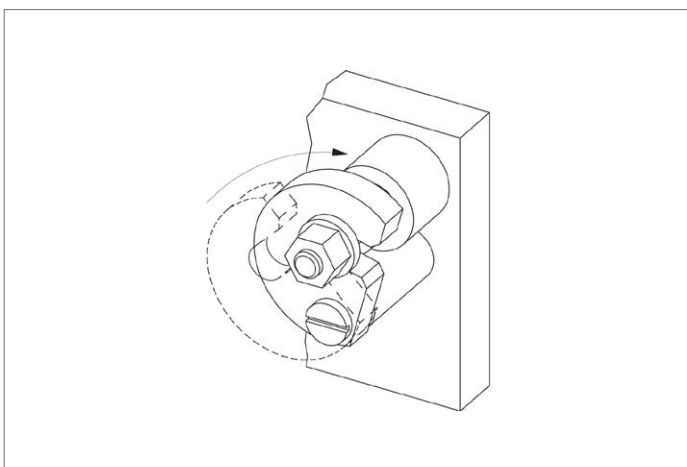
blackened.

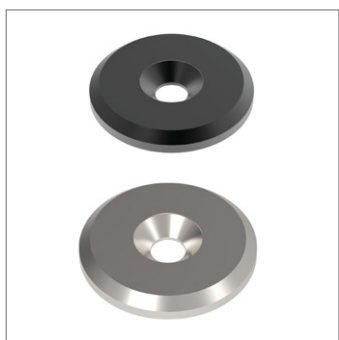
provided.

Technical Notes

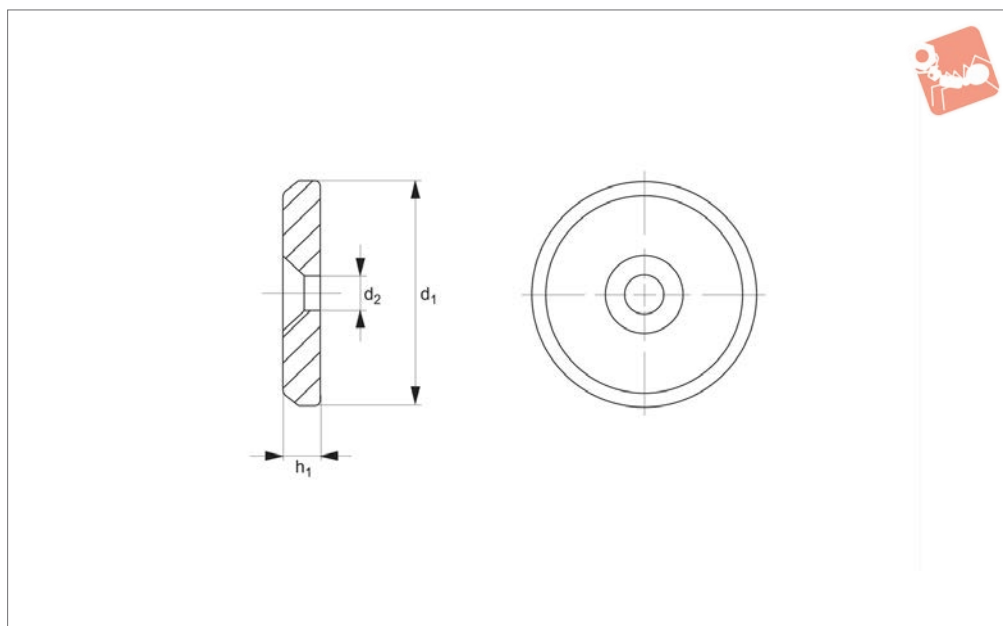
Shoulder bolt no. 36700 (DIN 923)

Order No.	Size	d ₁	d ₂	d ₃	h ₁ -0.2	l ₁	l ₂	l ₃	l ₄	w ₁	Matching screw DIN 923	Weight g
36620.W0006	6	6	9	38	9.8	19.6	11	29.0	19	7.5	M 6x10	66
36620.W0008	8	8	9	43	9.8	21.6	14	32.5	21	9.5	M 6x10	81
36620.W0010	10	10	9	48	9.8	23.6	17	36.5	23	11.5	M 6x10	99
36620.W0012	12	12	11	61	11.8	29.6	22	45.0	29	13.5	M 8x12	194
36620.W0016	16	16	11	68	11.8	33.6	25	50.0	33	17.5	M 8x12	229
36620.W0020	20	20	11	74	11.8	36.6	28	55.0	36	21.5	M 8x12	265
36620.W0024	24	24	11	82	15.8	40.6	32	62.0	40	25.5	M 8x16	430
36620.W0030	30	30	11	97	15.8	49.0	39	73.0	48	32.0	M 8x16	584





36720



Material

Free cutting steel type:

Free cutting steel, unhardened, blackened.

Stainless steel type:

Stainless steel (AISI 303, 1.4305).

Technical Notes

They can be pinned with a cylindrical pin to

prevent them turning or becoming loose.

Secure with screws.

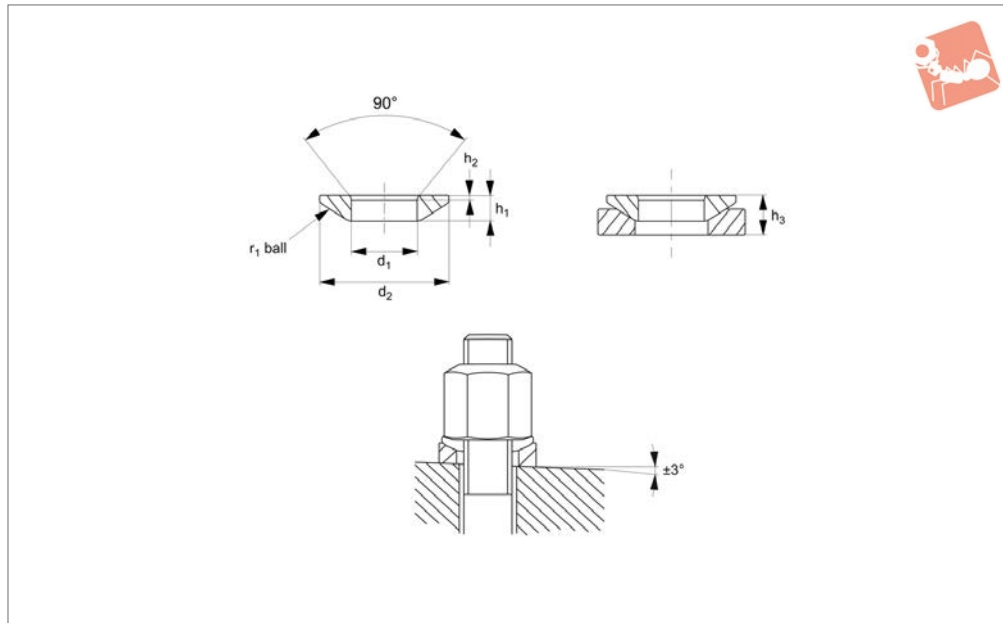
Order No.	Material	d_1	d_2	h_1	Matching screws DIN 963 and DIN 7991	Weight g
36720.W0016	Steel	16	4.5	3.0	M 4	3.6
36720.W0020	Steel	20	4.5	3.0	M 4	6.1
36720.W0022	Steel	22	5.5	3.5	M 5	8.1
36720.W0025	Steel	25	5.5	3.5	M 5	11
36720.W0028	Steel	28	5.5	3.5	M 5	14
36720.W0032	Steel	32	6.6	4.0	M 6	22
36720.W0036	Steel	36	6.6	4.0	M 6	28
36720.W0040	Steel	40	6.6	5.0	M 6	44
36720.W0045	Steel	45	6.6	6.0	M 6	66
36720.W0052	Steel	52	6.6	6.0	M 6	91
36720.W0516	Stainless	16	4.5	3.0	M 4	3.6
36720.W0520	Stainless	20	4.5	3.0	M 4	6.1
36720.W0522	Stainless	22	5.5	3.5	M 5	8.1
36720.W0525	Stainless	25	5.5	3.5	M 5	11
36720.W0528	Stainless	28	5.5	3.5	M 5	14
36720.W0532	Stainless	32	6.6	4.0	M 6	22
36720.W0536	Stainless	36	6.6	4.0	M 6	28
36720.W0540	Stainless	40	6.6	5.0	M 6	44
36720.W0545	Stainless	45	6.6	6.0	M 6	66
36720.W0552	Stainless	52	6.6	6.0	M 6	91



Washers - Spherical Seat stainless steel 303



Washers



25200

WASHERS

Material

Stainless steel (AISI 303, 1.4305), A2-70.

Technical Notes

Similar to DIN 6319C.

Used with dished washers no. 25500 (type

D), and no. 25800 (type G).

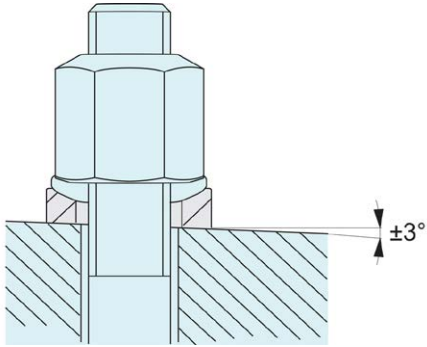
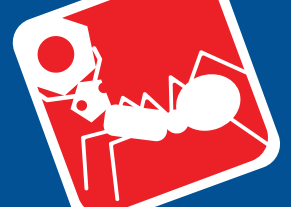
Tips

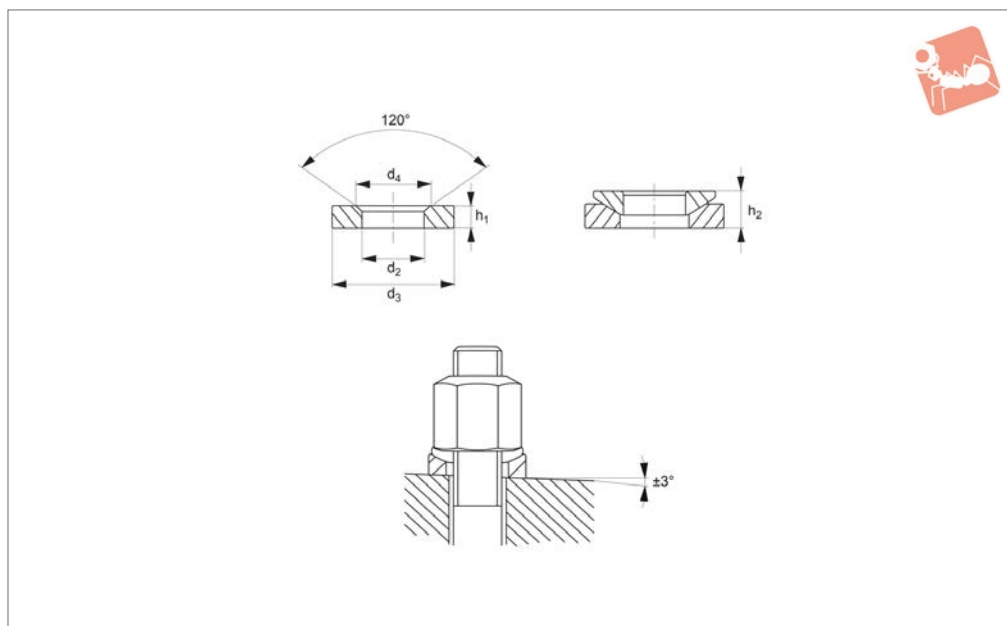
When clamping over holes or slots which do not provide full surface contact to the washer, only use no. 25200 in combination

with washer no. 25800 (type G)- do not use in combination with no. 25500 (type D) in such situations.

*Torques for screws A2-70 are approximate values.

Order No.	For thread	For thread inch	d ₁ tol. H13	d ₂	h ₁	h ₂	r ₁	Static load kN max.	Torque for screwed connectors Nm max.	With 25500 h ₃	With 25800 h ₃	Weight g
25200.W0306	M 6	1/4"	6,4	12	2,3	0,7	9	6	6	4,0	5,2	1
25200.W0308	M 8	5/16"	8,4	17	3,2	0,6	12	12	16	5,3	6,8	3
25200.W0310	M10	3/8"	10,5	21	4,0	0,8	15	16	32	6,3	7,1	5
25200.W0312	M12	1/2"	13,0	24	4,6	1,1	17	24	56	7,9	8,9	8
25200.W0316	M16	5/8"	17,0	30	5,3	1,3	22	45	135	9,3	10,1	13
25200.W0320	M20	3/4"	21,0	36	6,3	2,0	27	71	280	11,6	12,1	23
25200.W0324	M24	7/8"	25,0	44	8,2	2,4	32	105	455	14,9	15,4	46
25200.W0330	M30	1-1/8", 1-3/16"	31,0	56	11,2	3,6	41	191	1050	18,8	18,8	104
25200.W0336	M36	1-1/4", 1-3/8"	37,0	68	14,0	4,6	50			23,4		193
25200.W0342	M42	1-1/2"	43,0	78	17,0	6,5	58			28,3		313
25200.W0348	M48	1-3/4"	50,0	92	21,0	8,0	67			35,0		545





25500

WASHERS

Material

Stainless steel (AISI 303, 1.4305).

Use with spherical seat washer no. 25200 (type C).

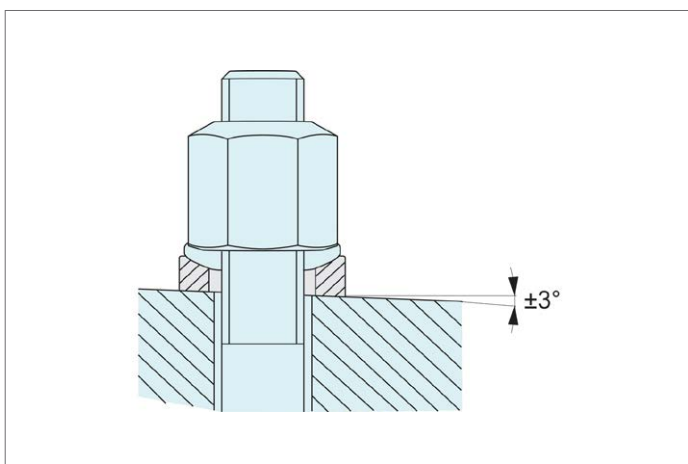
and also the coefficient of friction at $\mu 0,12$.

Technical Notes

Similar to DIN 6319D.

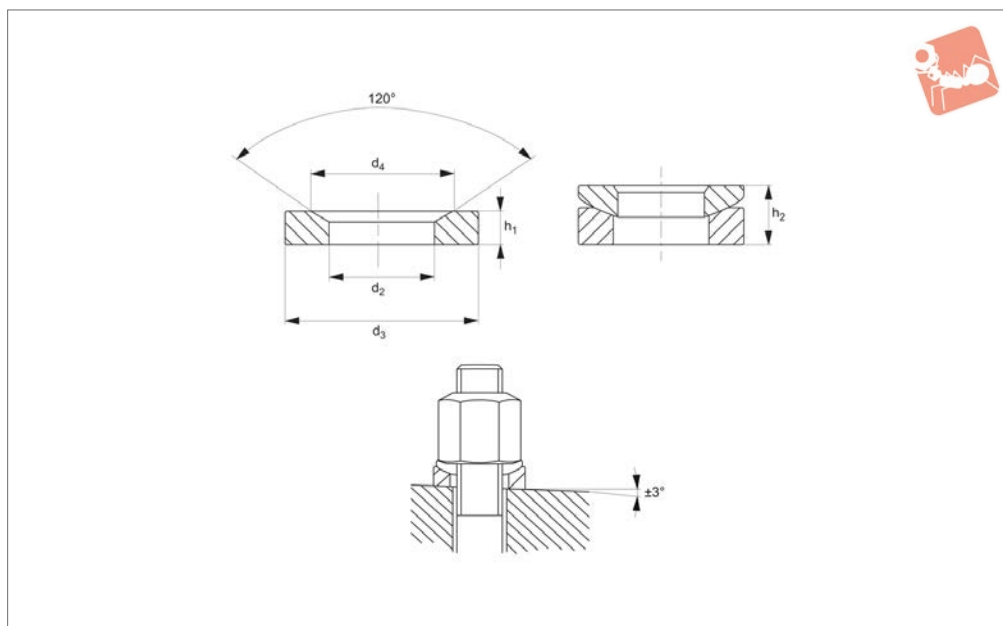
Torque values are approximate. Please consider the actual preloads in your appli-

Order No.	For metric thread d_1	For thread d_1 inch	d_2 tol. H13	d_3	h_1	d_4	Load capacity for static load		With 25200 h_2	Weight g
							kN max.	Torque Nm max.		
25500.W0406	M 6	1/4"	7,1	12	2,8	11,0	6	6	4,0	1
25500.W0408	M 8	5/16"	9,6	17	3,5	14,5	12	16	5,3	4
25500.W0410	M10	3/8"	12,0	21	4,2	18,5	16	32	6,3	7
25500.W0412	M12	1/2"	14,2	24	5,0	20,0	24	56	7,9	11
25500.W0416	M16	5/8"	19,0	30	6,2	26,0	45	135	9,3	19
25500.W0420	M20	3/4"	23,2	36	7,5	31,0	71	280	11,6	32
25500.W0424	M24	7/8"	28,0	44	9,5	37,0	105	455	14,9	63
25500.W0430	M30	1-1/8", 1-3/16"	35,0	56	12,0	49,0	191	1050	18,8	127
25500.W0436	M36	1-1/4", 1-3/8"	42,0	68	15,0	60,0			23,4	234
25500.W0442	M42	1-1/2"	49,0	78	18,0	70,0			28,3	362
25500.W0448	M48	1-3/4"	56,0	92	22,0	82,0			35,0	642





25800



Material

Stainless steel 1.4305 (AISI 303).

Their large diameter makes them suitable to bridge wide slots.

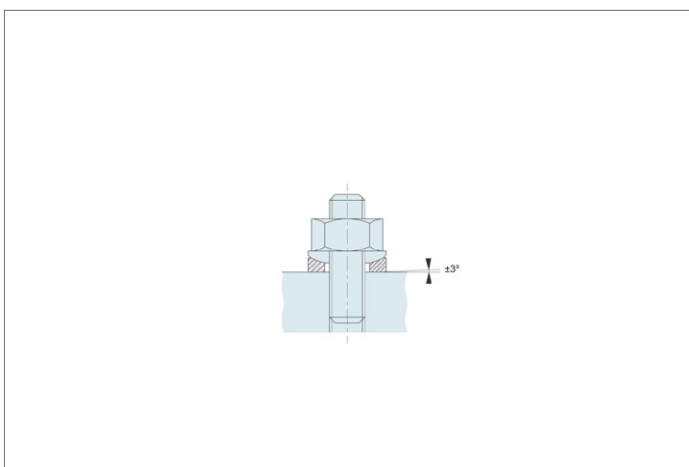
be considered, coefficient of friction μ total 0,12.

Technical Notes

Similar to DIN 6319G.

*Torque values of screwed connector A2-70 are approximate. Actual preloads should

Order No.	For metric thread d_1	For thread d_1 inch	d_2 tol. H13	d_3	h_1	d_4	Load capacity for static load		With 25200 h_2	Weight g
							kN max.	Torque Nm max.		
25800.W0106	M 6	1/4"	7,1	17	4	11,0	6	6	5,2	6
25800.W0108	M 8	5/16"	9,6	24	5	14,5	12	16	6,8	15
25800.W0110	M10	3/8"	12,0	30	5	18,5	16	32	7,1	22
25800.W0112	M12	1/2"	14,2	36	6	20,0	24	56	8,9	40
25800.W0116	M16	5/8"	19,0	44	7	26,0	45	135	10,1	66
25800.W0120	M20	3/4"	23,2	50	8	31,0	71	280	12,1	95
25800.W0124	M24	7/8"	28,0	60	10	37,0	105	455	15,4	171
25800.W0130	M30	1-1/8", 1-3/16"	35,0	68	12	49,0	191	1050	18,8	236

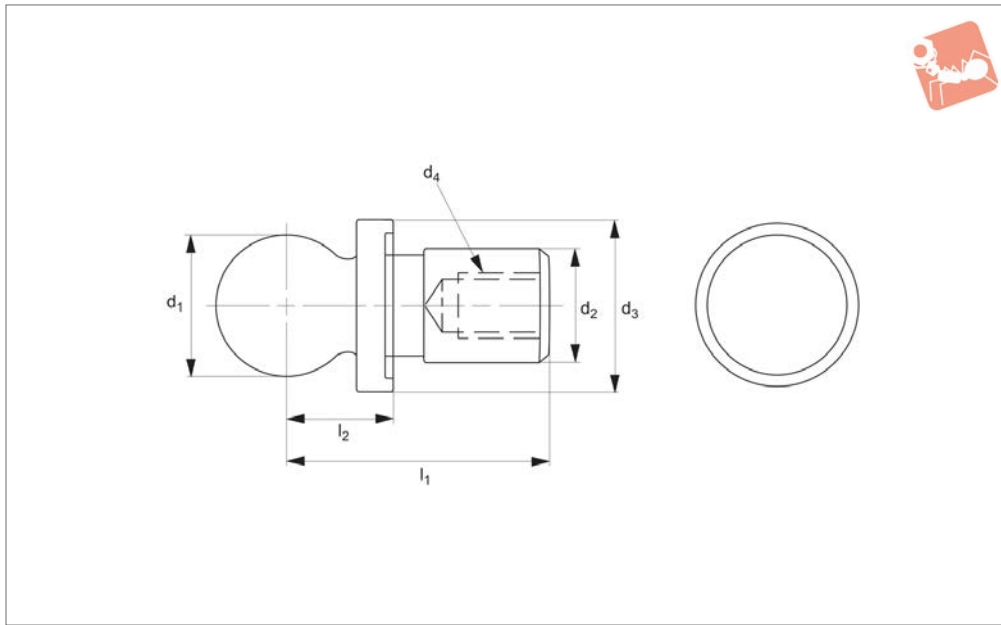




Inspection Balls - Imperial

short shank - one piece construction

Gauging & Inspection



20500

GAUGING & INSPECTION

Material

Steel (AISI 8620).

Technical Notes

Case hardened.

Concentricity of ball to shank ,0001 T.I.R.

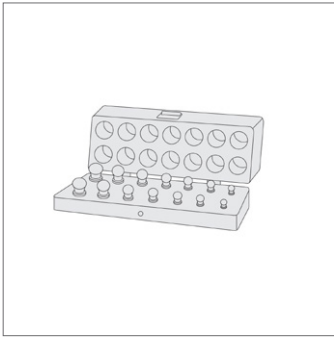
Important Notes

Used as reference points for inspection applications in conjunction with CMMs to

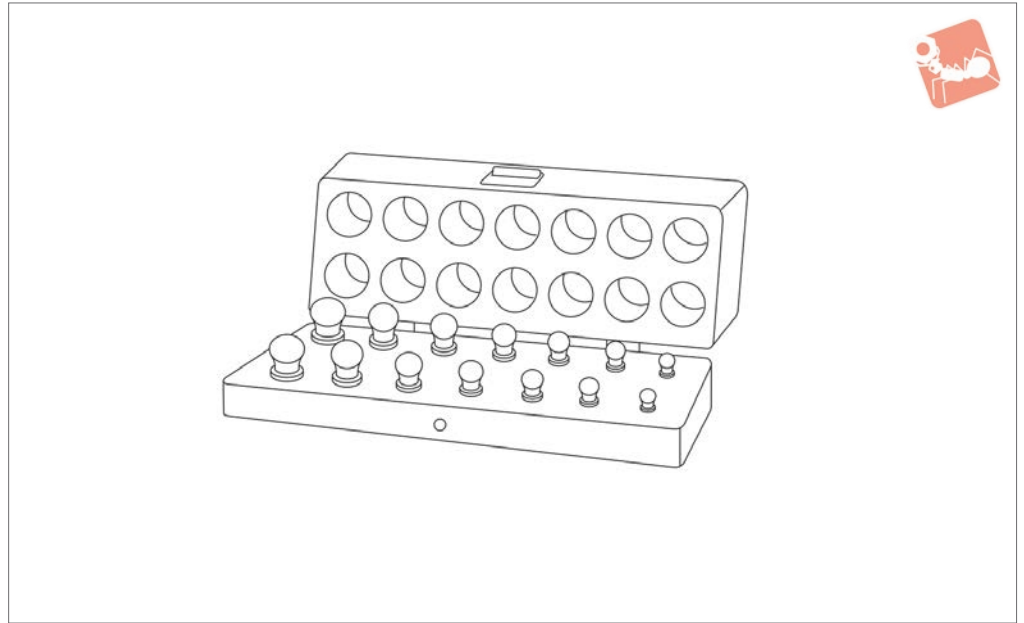
accurately measure the workpiece.

All dimensions in inches.

Order No.	d_1 +0.0000 -0.0002	d_2 +0.0000 -0.0002	d_3	d_4	l_1	l_2 ± 0.0002	Weight oz
20500.W0025I	0.250	0.125	1/4"	-	0.58	0.200	0.16
20500.W0037I	0.375	0.187	3/8"	-	0.74	0.300	0.16
20500.W0038I	0.375	0.313	1/2"	8-32	0.74	0.300	0.48
20500.W0050I	0.500	0.250	1/2"	6-32	0.63	0.313	0.48
20500.W0051I	0.500	0.250	1/2"	6-32	0.93	0.400	0.48
20500.W0052I	0.500	0.250	1/2"	6-32	0.88	0.500	0.48
20500.W0053I	0.500	0.375	5/8"	10-24	1.31	0.375	0.96
20500.W0063I	0.625	0.312	5/8"	8-32	1.08	0.450	0.96
20500.W0064I	0.625	0.375	5/8"	10-24	1.42	0.450	1.12
20500.W0068I	0.688	0.375	3/4"	10-24	1.47	0.500	1.44
20500.W0075I	0.750	0.375	3/4"	10-24	1.53	0.562	2.08
20500.W0100I	1.000	0.500	1"	10-24	1.64	0.700	4.00



20501



Material

Steel (AISI 8620).

Important Notes

For individual part dimensions see 20500.

Order No.

20501.W0001I

Set contents

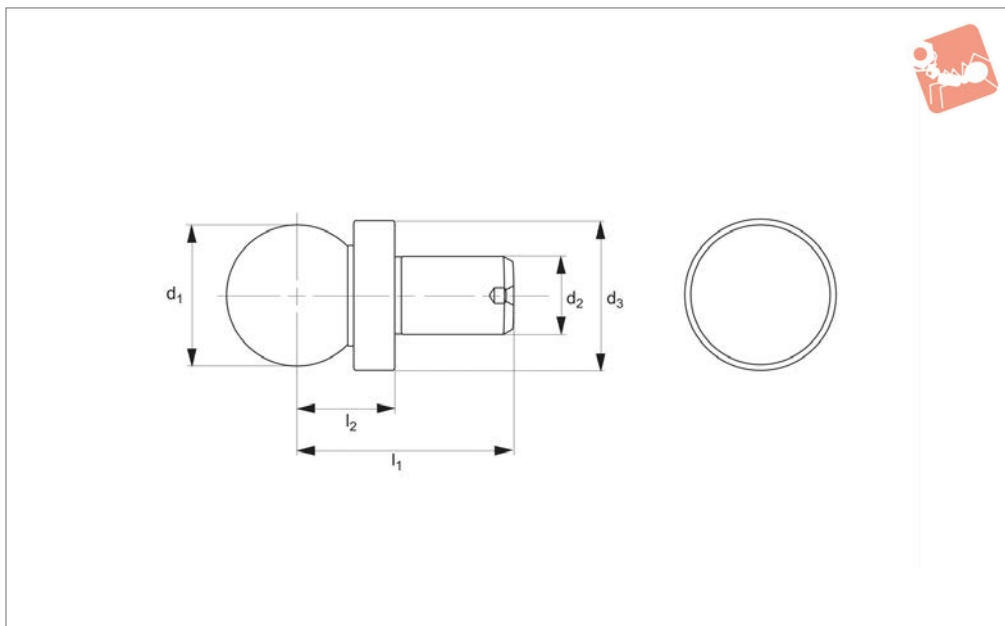
- 2 x 20500.W0025I
- 2 x 20500.W0037I
- 2 x 20500.W0038I
- 2 x 20500.W0050I
- 2 x 20500.W0051I



Precision Balls - Imperial

slip-fit - shoulder type

Gauging & Inspection



20504

GAUGING & INSPECTION

Material

Hardened and ground steel (440 stainless).

Technical Notes

Concentricity of ball to shank: ,0002 T.I.R.

Important Notes

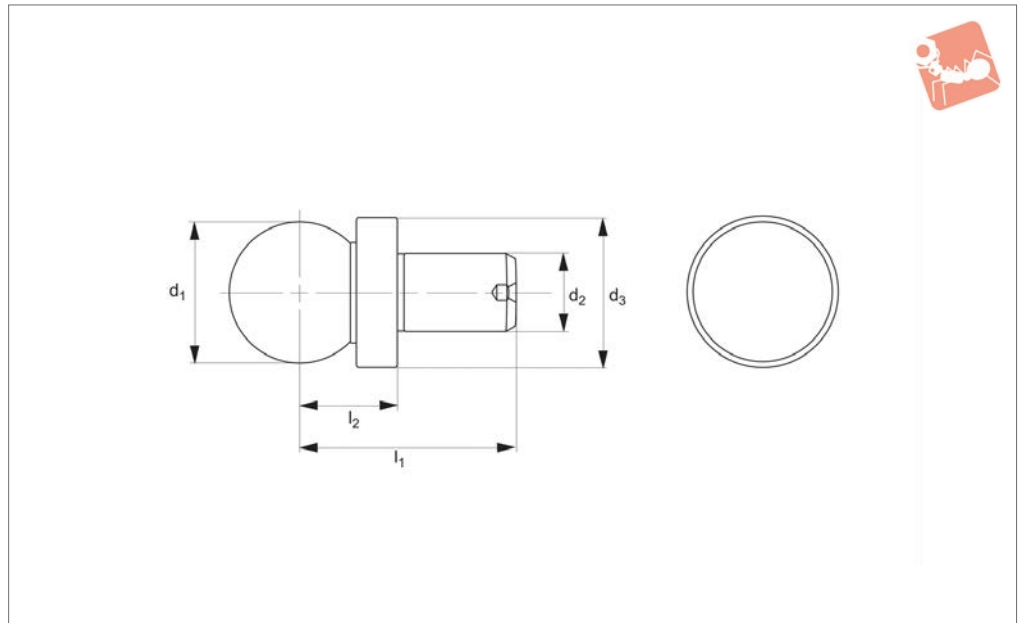
Used as reference points for inspection applications in conjunction with CMMs to accurately measure the work piece.

All dimensions in inches.

Order No.	d_1 ± 0.0005	d_2 $+0.0000 \mid -0.0002$	d_3	l_1	l_2 ± 0.0002	Weight oz
20504.W0025I	0.250	0.150	1/4"	9/16"	0.200	0.16
20504.W0037I	0.375	0.187	3/8"	3/4"	0.300	0.16
20504.W0050I	0.500	0.250	1/2"	15/16"	0.400	0.48
20504.W0063I	0.625	0.312	5/8"	1-1/16"	0.450	0.96
20504.W0075I	0.750	0.375	3/4"	1-1/4"	0.500	1.60
20504.W0088I	0.875	0.437	7/8"	1-7/16"	0.600	1.12
20504.W0100I	1.000	0.500	1"	1-5/8"	0.700	3.48



20508



Material

Hardened and ground steel (8620 steel).

Technical Notes

Concentricity of ball to shank: $.0002$ T.I.R.

Important Notes

Used as reference points for inspection applications in conjunction with CMMs to accurately measure the work piece.

All dimensions in inches.

For Press Fit d_2 tolerance

is $+ .0003, - .0000$.

For Slip Fit d_2 tolerance

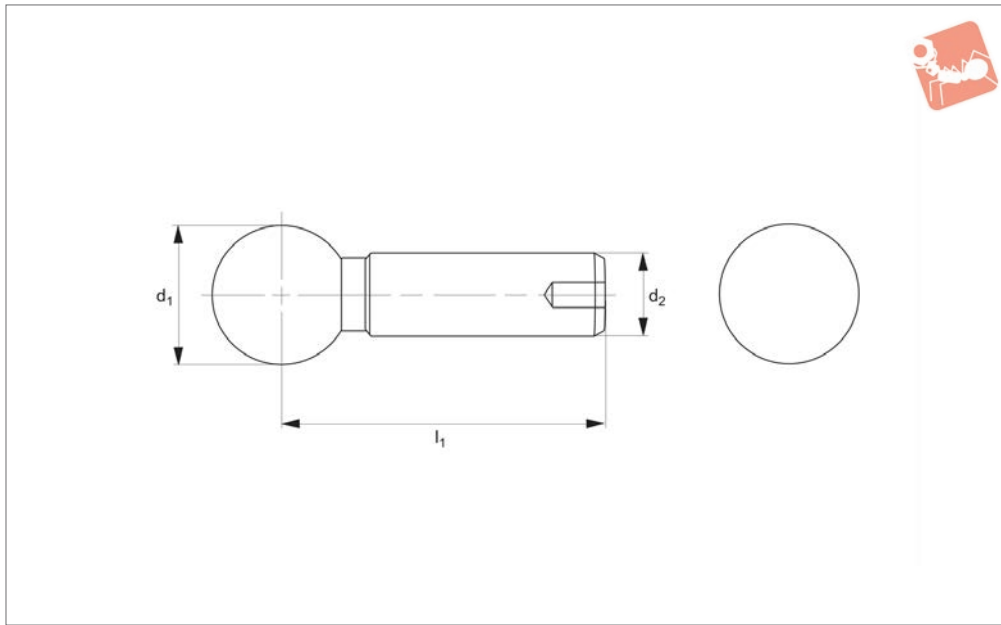
is $+ .0000, - .0004$.

Order No.	Type	d_1 ± 0.0002	d_2 $+0.0003 -0.0000$	d_3	l_1	l_2 ± 0.0002	Weight oz
20508.W0025I	Slip Fit	0.250	0.125	1/4"	9/16"	0.200	0.16
20508.W0037I	Slip Fit	0.375	0.188	3/8"	3/4"	0.300	0.16
20508.W0050I	Slip Fit	0.500	0.250	1/2"	15/16"	0.400	0.48
20508.W0051I	Slip Fit	0.500	0.250	1/2"	1-3/8"	0.500	0.64
20508.W0075I	Slip Fit	0.750	0.375	3/4"	1-1/4"	0.500	1.60
20508.W0125I	Press Fit	0.250	0.125	1/4"	9/16"	0.200	0.16
20508.W0137I	Press Fit	0.375	0.188	3/8"	3/4"	0.300	0.16
20508.W0150I	Press Fit	0.500	0.250	1/2"	15/16"	0.400	0.48
20508.W0151I	Press Fit	0.500	0.250	1/2"	1-3/8"	0.500	0.64
20508.W0175I	Press Fit	0.750	0.375	3/4"	1-1/4"	0.500	1.60



Tooling Balls - Imperial standard - one piece construction

Gauging & Inspection



20510

GAUGING & INSPECTION

Material

Hardened and ground steel (8620 steel).

Technical Notes

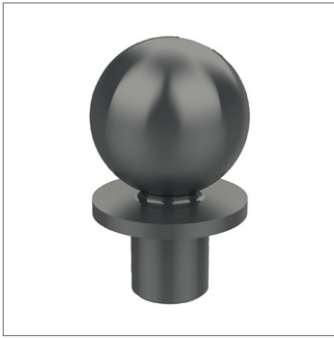
Concentricity of ball to shank: ,0002 T.I.R.

Important Notes

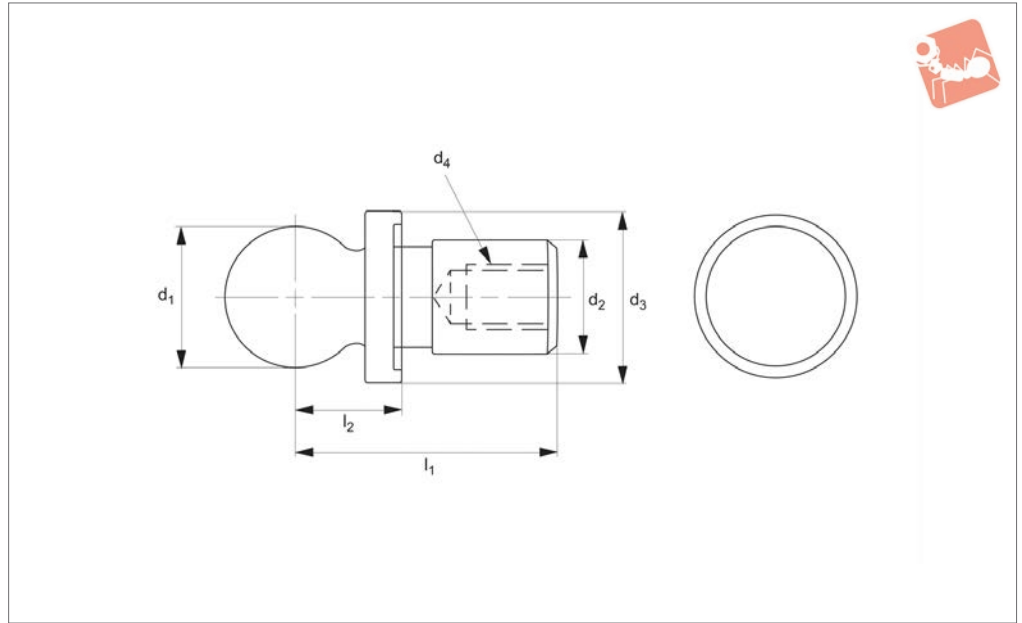
Used as reference points for inspection applications in conjunction with CMMs to accurately measure the work piece.

All dimensions in inches.

Order No.	Type	d_1 ± 0.0002	d_2 $+0.0000 \mid -0.0004$	l_1	Weight oz
20510.W0025I	Slip Fit	0.250	0.125	9/16"	1
20510.W0037I	Slip Fit	0.375	0.188	3/4"	1
20510.W0050I	Slip Fit	0.500	0.250	15/16"	3
20510.W0051I	Slip Fit	0.500	0.250	1-1/2"	3
20510.W0052I	Slip Fit	0.500	0.375	1-1/2"	10



20512



GAUGING & INSPECTION

Material

Hardened and ground steel (8620 steel).

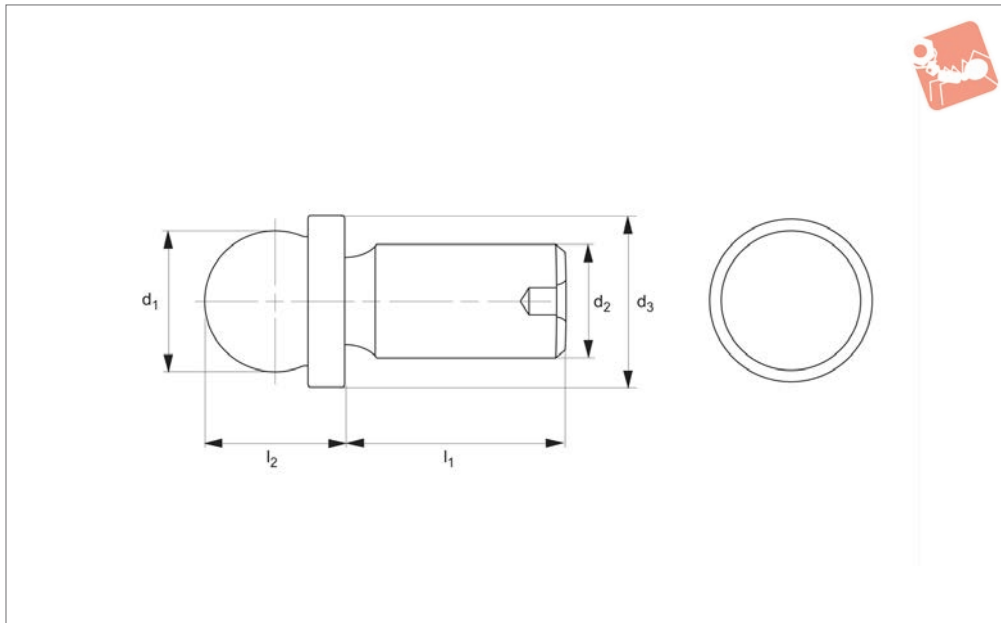
Technical Notes

Concentricity of ball to shank: ,0002 T.I.R.

Important Notes

Used as reference points for inspection applications in conjunction with CMMs to accurately measure the work piece.

Order No.	Type	d ₁ inch ±0.0002 in ±0.005 mm	d ₂ +0.0000 in -0.0004 in. +0.000 mm -0.010 mm	d ₃	d ₄ UNC-2B	l ₁	l ₂ ±0.0002 in ±0.005 mm	Weight g
20512.W0006	Inch	0,500	0,250	1/2"	6-32x3/16"	5/8"	0,313	13,6
20512.W0010	Inch	0,500	0,250	1/2"		5/8"	0,313	13,6
20512.W0012	Metric	6	3	6		16	6	4,5
20512.W0050	Metric	10	5	10		20	10	13,6
20512.W0051	Metric	12	6	12		22	12	13,6



20513

GAUGING & INSPECTION

Material

Ball: carbide.
Shank: 440 stainless steel.

Technical Notes

Concentricity of ball to shank: ,0002 T.I.R.

Important Notes

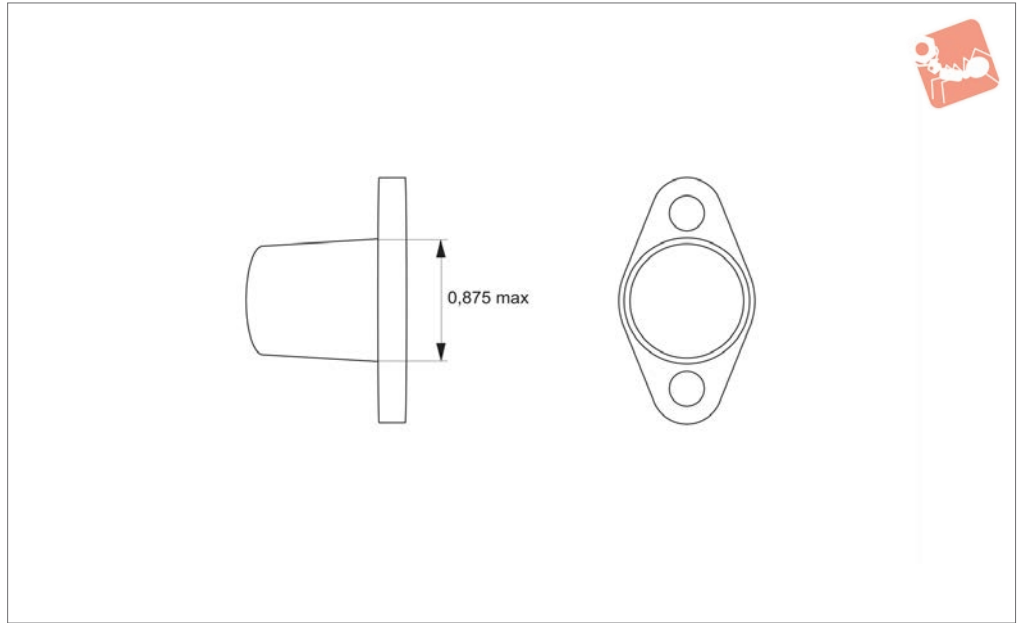
Used as reference points for inspection applications in conjunction with CMMs to accurately measure the work piece.

All dimensions in inches.

Order No.	d_1	d_2	d_3	l_1	l_2
20513.W0012I	± 0.0003 0.125	± 0.0002 0.126	0.19	0.28	± 0.0002 0.156



20515



Material

Durable, high impact resistant polymer.

Technical Notes

Mounts over 0,875" diameter or smaller

tooling ball directly into jig fixture with two number 10 screws.

Important Notes

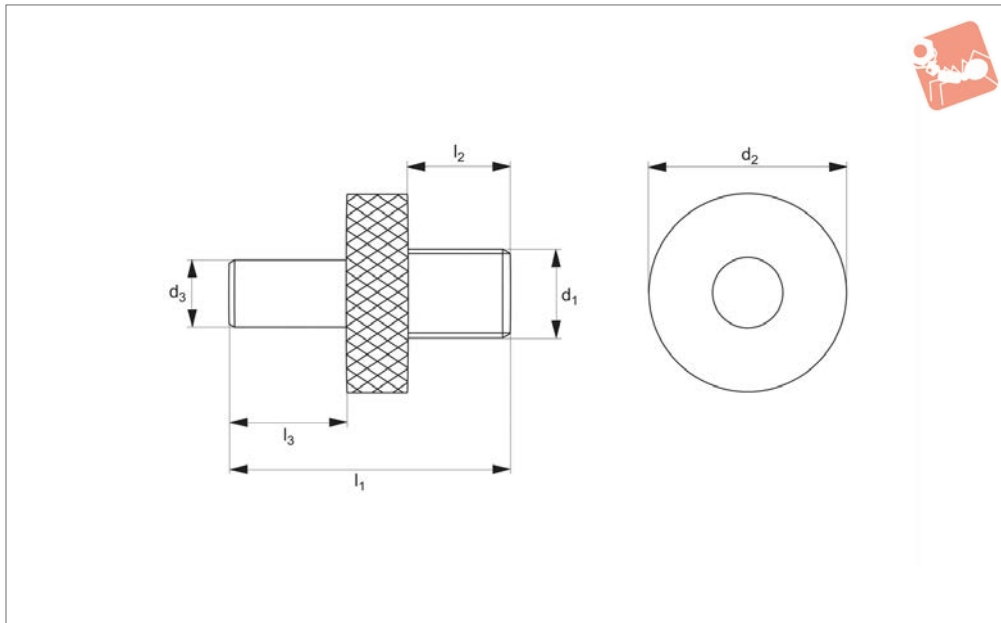
Protects tooling and inspections balls from

damage between operations.
All dimensions in inches.

Order No.

20515.W0088I

Tooling ball diameter
max.
0.875



20530

GAUGING & INSPECTION

Material

Body: 52100 steel.
Collar: 12L14 steel, blackened.

spread - all diameters are concentric within .0002 T.I.R.
Thread: class 3A.

holes in a workpiece.
All dimensions in inches.

Technical Notes

Shaft size l_3 is the same diameter on all gauges to simplify calculation of the hole

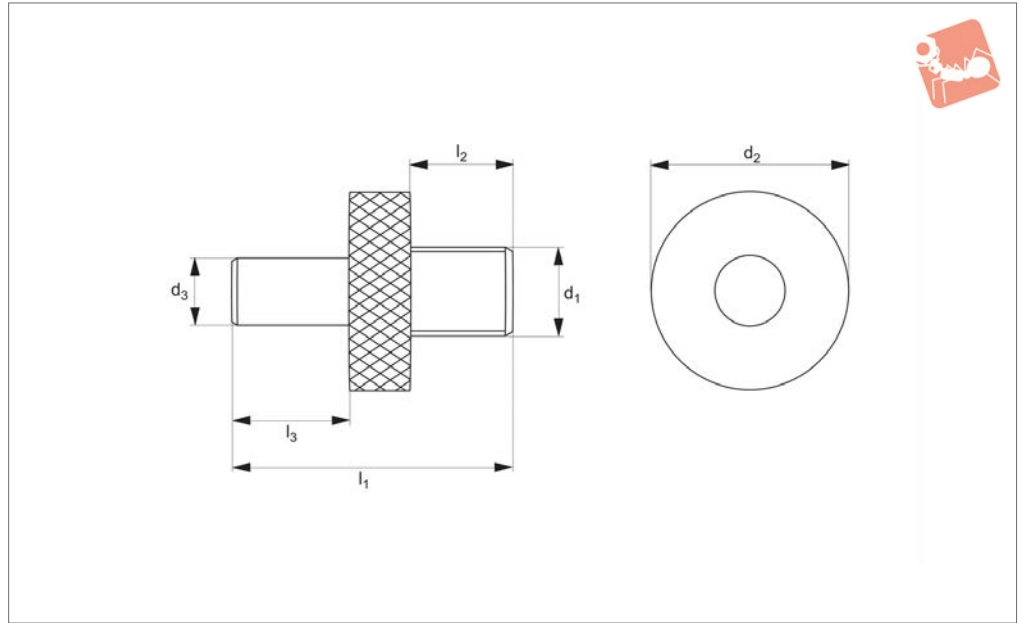
Important Notes

Two piece construction. Use to accurately measure the distance between two tapped

Order No.	Type	d_1 tol. 3A	d_2	d_3 +0.0002 -0.0000	l_1	l_2	l_3	Weight g
20530.W0014I	UNF	6-40	5/16"	0.25	7/8"	1/4"	0.38	4.5
20530.W0019I	UNF	10-32	5/16"	0.25	7/8"	1/4"	0.38	4.5
20530.W0025I	UNF	1/4"-28	3/8"	0.25	1"	3/8"	0.38	9.1
20530.W0031I	UNF	5/16"-24	1/2"	0.25	1"	3/8"	0.38	13.6
20530.W0037I	UNF	3/8"-24	1/2"	0.25	1"	3/8"	0.38	13.6
20530.W0043I	UNF	7/16"-20	7/8"	0.25	1"	3/8"	0.38	18.1
20530.W0050I	UNF	1/2"-20	7/8"	0.25	1"	3/8"	0.38	27.2
20530.W0063I	UNF	5/8"-18	7/8"	0.25	1"	3/8"	0.38	27.2
20530.W0108I	UNC	2-56	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0111I	UNC	4-40	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0112I	UNC	5-40	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0114I	UNC	6-32	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0116I	UNC	8-32	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0119I	UNC	10-24	5/16"	0.25	7/8"	5/16"	0.38	4.5
20530.W0125I	UNC	1/4"-20	3/8"	0.25	1"	3/8"	0.38	13.6
20530.W0131I	UNC	5/16"-18	1/2"	0.25	1"	3/8"	0.38	13.6
20530.W0137I	UNC	3/8"-16	1/2"	0.25	1"	3/8"	0.38	13.6
20530.W0143I	UNC	7/16"-14	7/8"	0.25	1"	3/8"	0.38	13.0
20530.W0150I	UNC	1/2"-13	7/8"	0.25	1"	3/8"	0.38	27.2
20530.W0163I	UNC	5/8"-11	7/8"	0.25	1"	3/8"	0.38	27.2
20530.W0175I	UNC	3/4"-10	1"	0.25	1-1/8"	1/2"	0.38	54.4



20531



GAUGING & INSPECTION

Material

Body: 52100 steel.
Collar: 12L14 steel, blackened.

gauges to simplify calculation of the hole spread - all diameters are concentric within .0002 T.I.R. Thread class 6G

measure the distance between two tapped holes in a workpiece.

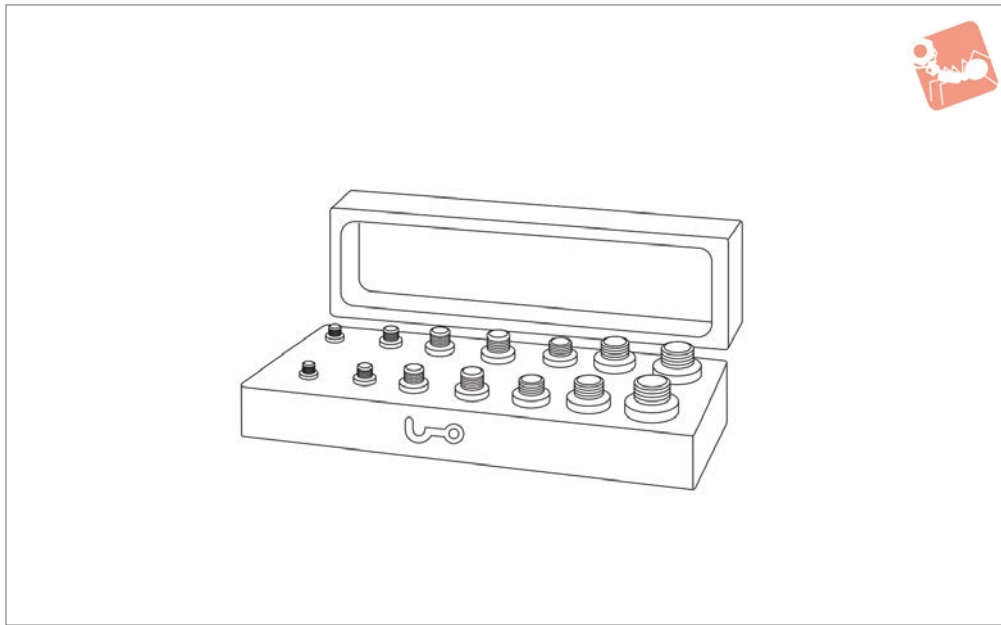
Technical Notes

Shaft size l_3 is the same diameter on all

Important Notes

Two piece construction. Use to accurately

Order No.	d_1 tol. 6G	d_2	d_3 +0.0002 -0.0000	l_1	l_2	l_3	Weight g
20531.W0001	M 1,6x0,35	7.95	6.4	22	6.4	9.5	4.5
20531.W0002	M 2x0,40	7.95	6.4	22	6.4	9.5	4.5
20531.W0003	M 2,5x0,45	7.95	6.4	22	6.4	9.5	4.5
20531.W0004	M 3x0,50	7.95	6.4	22	6.4	9.5	4.5
20531.W0005	M 4x0,70	7.95	6.4	22	6.4	9.5	4.5
20531.W0006	M 5x0,80	9.53	6.4	22	6.4	9.5	0.2
20531.W0008	M 6x1,00	9.53	6.4	22	6.4	9.5	6.2
20531.W0010	M 8x1,25	12.70	6.4	28	12.7	9.5	12.2
20531.W0012	M10x1,50	12.70	6.4	28	12.7	9.5	20.4
20531.W0016	M12x1,75	22.23	6.4	28	12.7	9.5	24.9
20531.W0020	M16x2,00	22.23	6.4	28	12.7	9.5	34.0
20531.W2508	M20x2,50	25.40	6.4	28	12.7	9.5	45.4



20532

GAUGING & INSPECTION

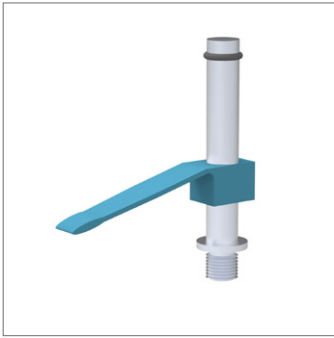
Material

Body: 52100 steel.
Collar: 12L14 steel, blackened.

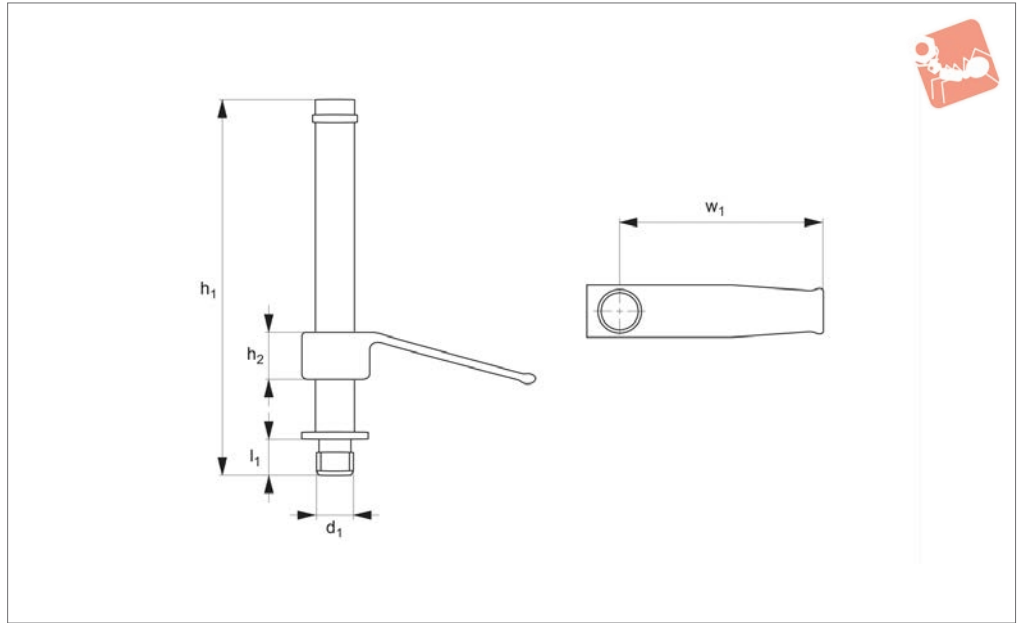
Important Notes

For individual part dimensions see 20530.

Order No.	Set contents	Type	Weight g
20532.W0001I	2 x 20530.W0019I 2 x 20530.W0025I 2 x 20530.W0031I 2 x 20530.W0037I 2 x 20530.W0043I	UNF	454
20532.W0002I	2 x 20530.W0119I 2 x 20530.W0125I 2 x 20530.W0131I 2 x 20530.W0137I 2 x 20530.W0143I	UNC	454
20532.W0003I	2 x 20530.W0108I 2 x 20530.W0111I 2 x 20530.W0112I 2 x 20530.W0114I 2 x 20530.W0014I	UNC	454



19320



GAUGING & INSPECTION

Material

Aluminium.

Technical Notes

For fixturing on CMMs only, not recom-

mended for machining.

Tips

Optional rubber coated tip helps prevent marring of parts during inspection.

Important Notes

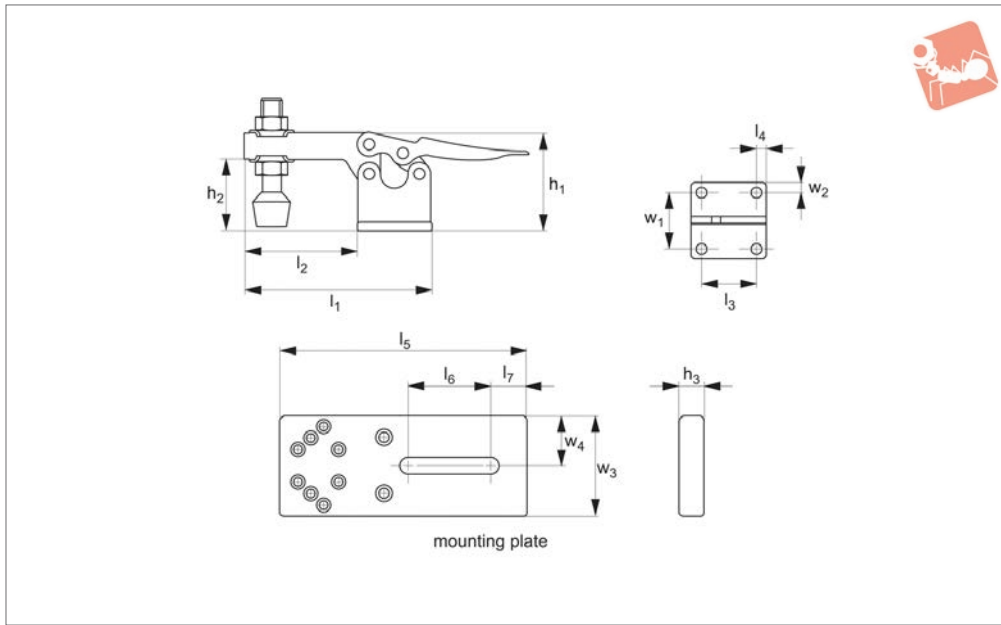
Ideal for light pressure clamping, actuated by finger pressure.

Order No.	Type	d ₁	h ₁	h ₂	l ₁	w ₁	Weight g
19320.W0008	Standard	M 8	75	8	6.37	39.0	68
19320.W0012	Standard	M 8	75	12	6.37	58.7	92
19320.W0108	Rubber coated tip	M 8	75	8	6.37	39.0	68
19320.W0112	Rubber coated tip	M 8	75	12	6.37	58.7	92



CMM Fixturing Toggle Clamp with mounting plate

Gauging & Inspection



19322

GAUGING & INSPECTION

Material

Single toggle clamp supplied with matching mounting plate.

mounting base for easy adjustment and positioning.

Technical Notes

Hold parts for probing on CMMs. Sliding

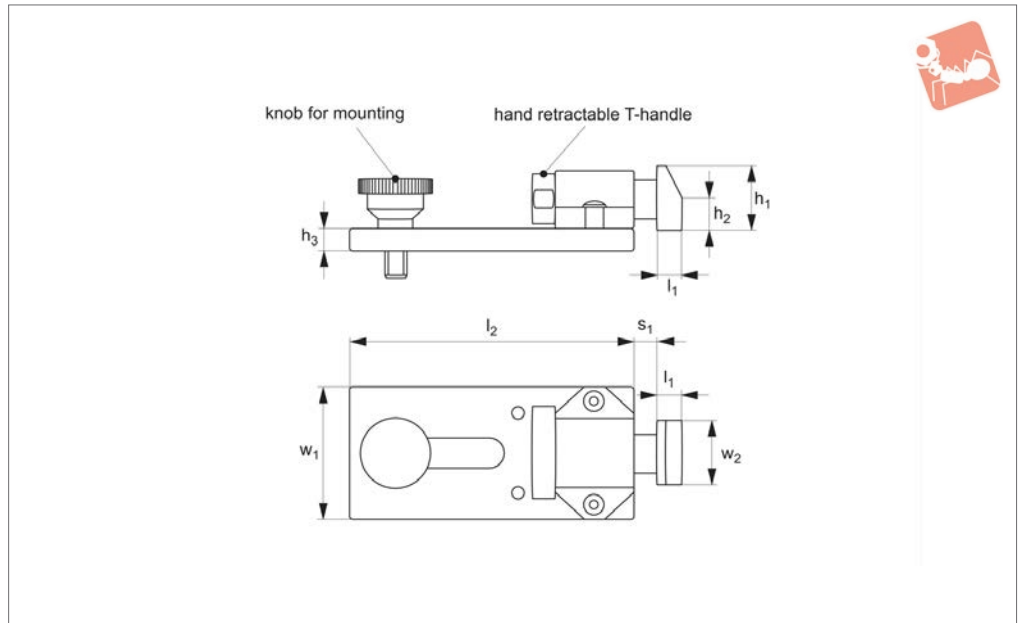
Tips

Supplied with thumb screws to locate toggle clamp mounting plate.

Order No.	h_1	h_2	h_3	l_1	l_2	l_3	l_4	l_5	l_6	l_7	w_1	w_2	w_3	w_4	Weight g
19322.W0075	19.05	7.9	6.3	67.5	17.46	15.9	7.9	80	25	13	15.9	3.97	38	19	591
19322.W0150	38.1	25.4	6.3	138.1	57.1	26.9	4.7	80	25	13	22.2	6.7	38	19	1000



19324



Material

Steel.

allows for quick part changeover. Sliding mounting base for easy adjustment and positioning.

Important Notes

Provides horizontal clamping. T-handle

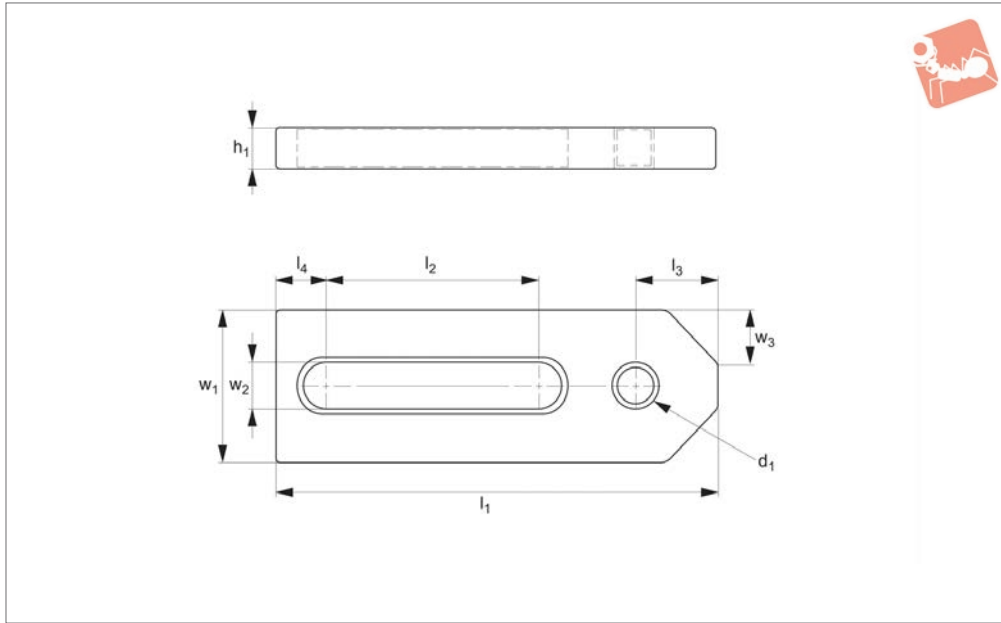
Order No.	Stroke s_1	h_1	h_2	h_3	l_1	l_2	w_1	w_2	Weight g
19324.W0025	4.8	15.9	7.9	6.35	6.4	80	38	15.9	682



CMM Fixturing Adjustable Stops

M 8 threads

Gauging & Inspection



19326

GAUGING & INSPECTION

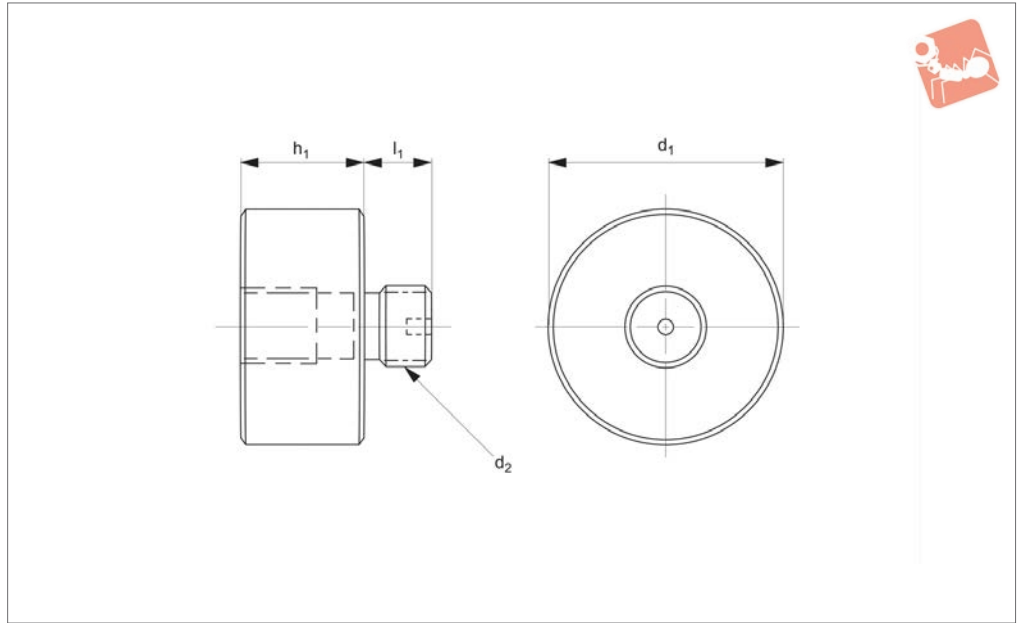
Important Notes

Sliding mounting base for easy adjustment and positioning. Thumb screw included.

Order No.	d ₁	h ₁	l ₁	l ₂	l ₃	l ₄	w ₁	w ₂	w ₃ 45° ±0.2	Weight g
19326.W0050	M 8	6.4	51	22	5.0	8	15	8.75	5.0	96
19326.W0075	M 8	6.4	76	45	6.4	8	25	8.75	6.4	150



19330



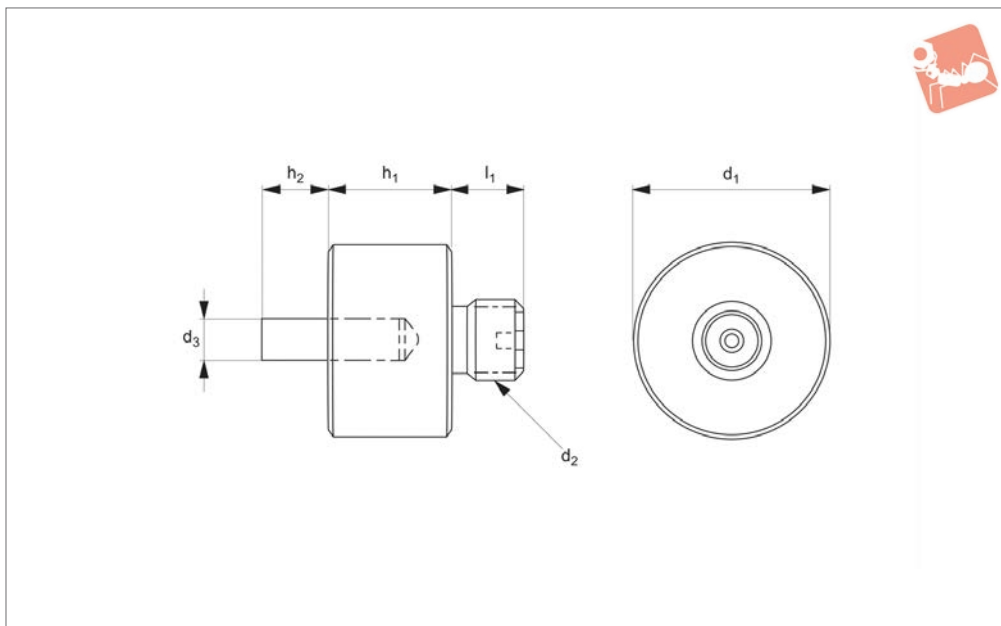
Material

Carbon steel.

Important Notes

Provides resting point to raise part for probing.

Order No.	d ₁	d ₂	h ₁	l ₁	Weight g
19330.W1315	13	M 8	15	8	91
19330.W1320	13	M 8	20	8	136
19330.W1325	13	M 8	25	8	182
19330.W1350	13	M 8	50	8	364
19330.W1375	13	M 8	75	8	409
19330.W1915	19	M 8	15	8	136
19330.W1920	19	M 8	20	8	182
19330.W1925	19	M 8	25	8	227
19330.W1950	19	M 8	50	8	454
19330.W1975	19	M 8	75	8	591
19330.W2515	25	M 8	15	8	182
19330.W2520	25	M 8	20	8	227
19330.W2525	25	M 8	25	8	272
19330.W2550	25	M 8	50	8	500
19330.W2575	25	M 8	75	8	727



19331

GAUGING & INSPECTION

Material

Carbon steel.

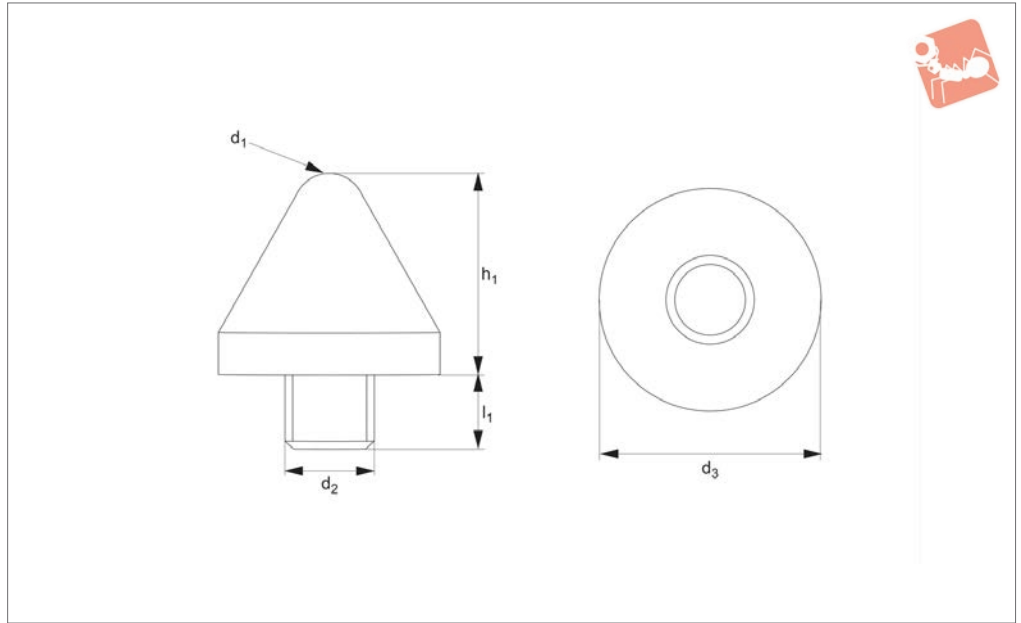
Important Notes

Provides point of rest and side stop for locating.

Order No.	d ₁	d ₂	d ₃	h ₁	h ₂	l ₁	Weight g
19331.W1325	13	M 8	3	25	6	6.4	91
19331.W1925	19	M 8	3	25	6	6.4	136



19332



GAUGING & INSPECTION

Material

Cone: thermoplastic.
Stud: steel.

Important Notes

For resting cylindrical or curved parts.
Thermoplastic, offers non-marring attri-

bute.

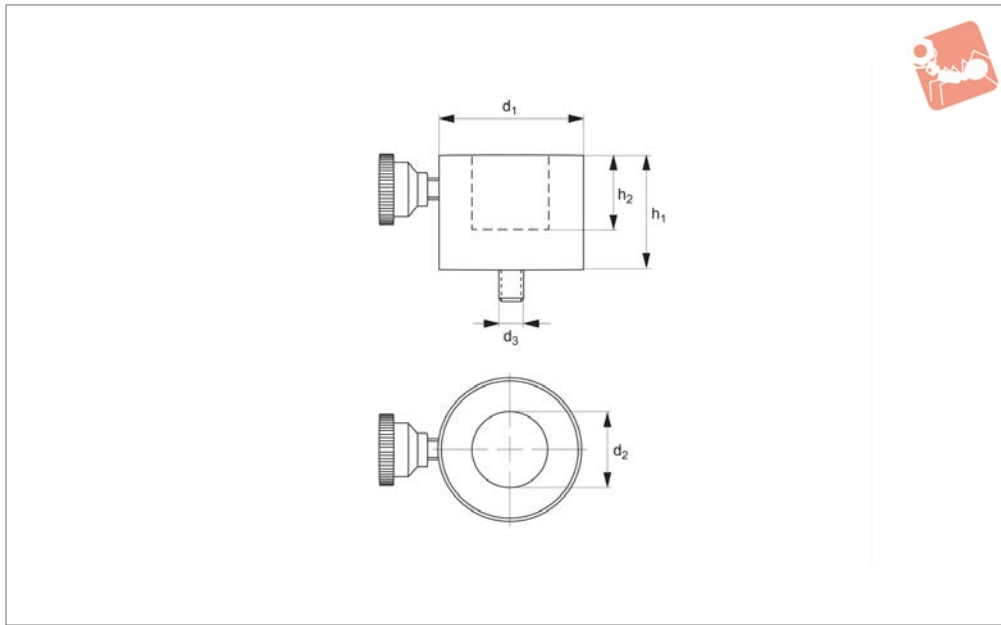
Order No.	d_1	d_2	d_3	h_1	l_1	Weight g
19332.W1613	4	M 8	16	13	6.4	114



CMM Fixturing Magnetic Stand off

M 8 threads

Gauging & Inspection



19333

GAUGING & INSPECTION

Material

Thermoplastic.

hold cylindrical parts. Use with magnetic vee, part 19338.

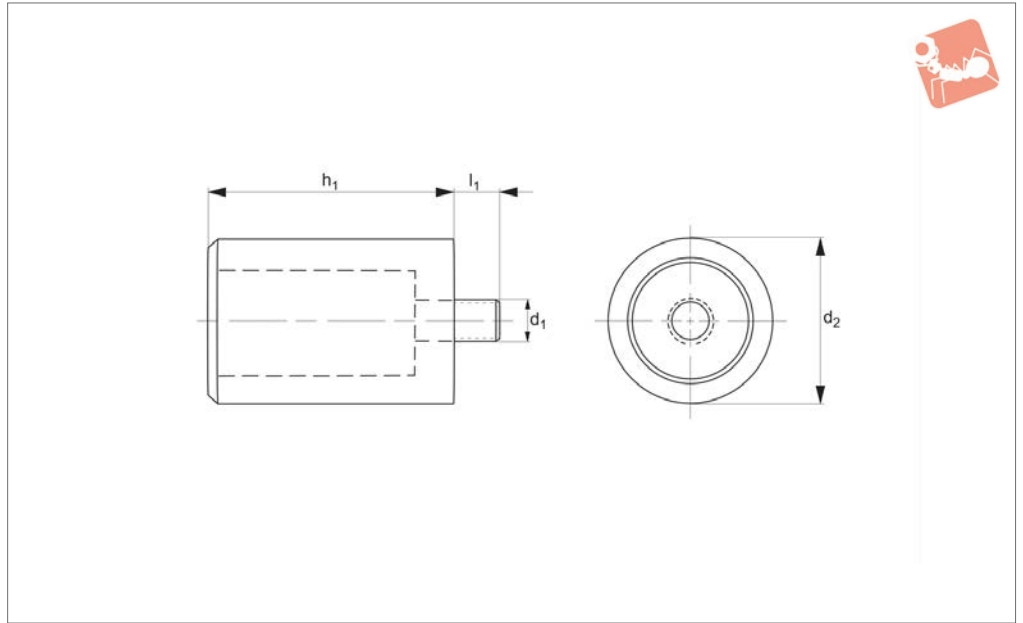
Important Notes

For aligning multiple magnetic vees to

Order No.	d ₁	d ₂	d ₃	h ₁ max.	h ₂ stroke	Weight g
19333.W2832	28	13.5	M 8	32	15.8	91
19333.W3532	35	19.5	M 8	32	15.8	136
19333.W4132	41	25.4	M 8	32	13.0	182



19336



GAUGING & INSPECTION

Material

AL NICO magnet in brass sleeve.

Important Notes

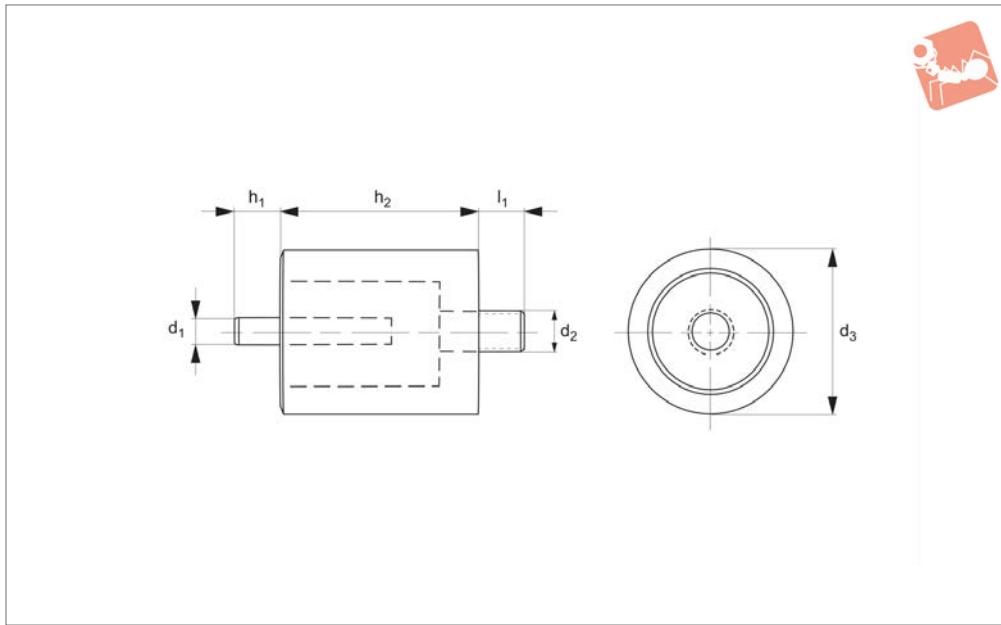
For fixturing steel or iron parts. Magnetic force holds parts during probing.

Order No.	d_1	d_2	h_1	l_1	Weight g
19336.W1325	M 8	12.7	25	8	91
19336.W1925	M 8	19.0	25	8	227
19336.W2525	M 8	25.4	25	8	273



CMM Fixturing Magnetic Stand off with pin, for M 8 threads

Gauging & Inspection



19337

GAUGING & INSPECTION

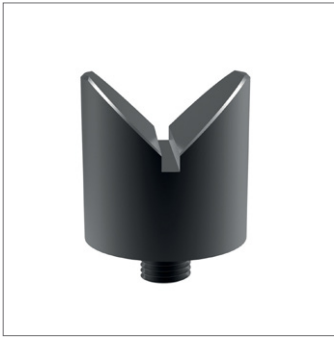
Material

AL NICO magnet in brass sleeve.

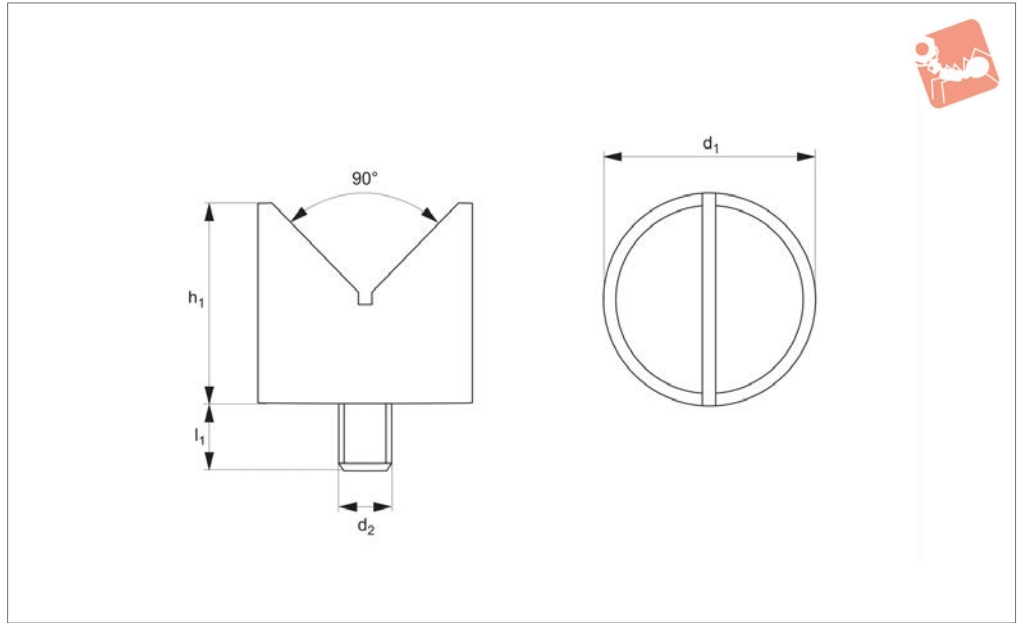
Important Notes

For fixturing steel or iron parts. Magnetic force holds parts during probing.

Order No.	d ₁	d ₂	d ₃	h ₁	h ₂	l ₁
19337.W1325	3	M 8	12.7	6	25	8
19337.W1925	3	M 8	19.0	6	25	8
19337.W2525	3	M 8	25.4	6	25	8



19338

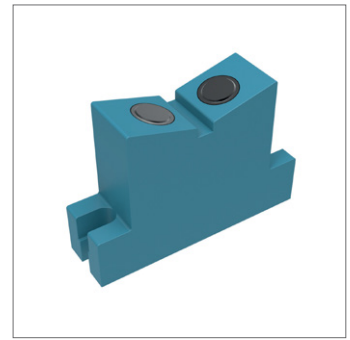
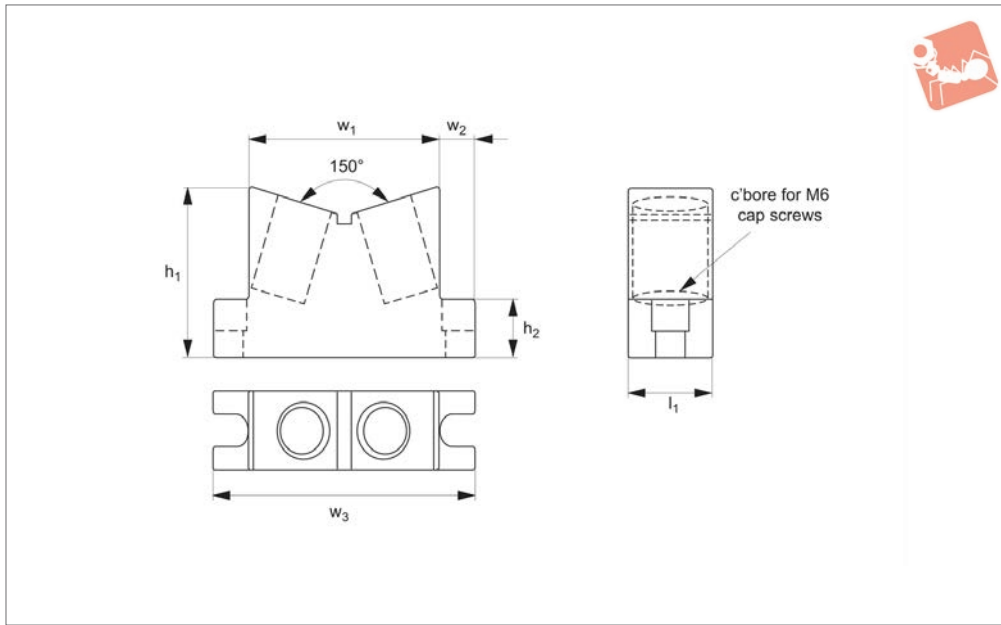


GAUGING & INSPECTION

Important Notes

For fixturing cylindrical steel or iron parts.
Magnetic force holds parts during probing.

Order No.	d ₁	d ₂	h ₁	l ₁	Holding dia.	Weight g
19338.W1325	12.7	M 8	25.4	6.4	3-16	68
19338.W2525	25.4	M 8	25.4	6.4	3-40	182



19339

GAUGING & INSPECTION

Important Notes

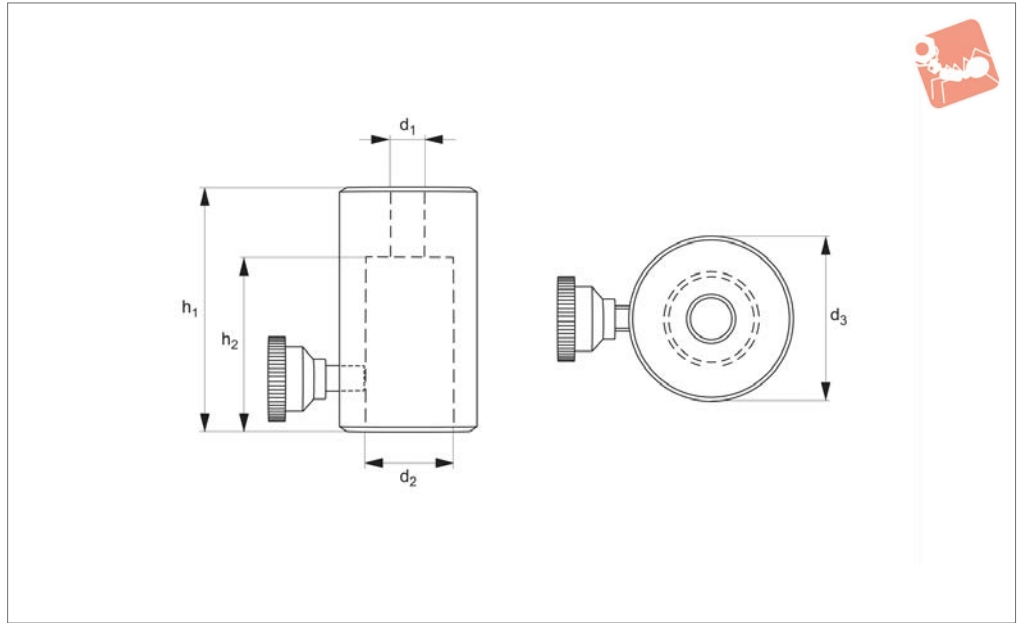
For holding large cylindrical steel or iron parts. Includes two cap screws to fasten to

plate.

Order No.	h_1	h_2	l_1	w_1	w_2	w_3	For holding dia.	Weight g
19339.W0050	42	22	25	63.4	14	92	50-160	454



19350



Material

Thermoplastic.

Important Notes

Slips over $\varnothing 12,7$ standoffs. Knurled knob quickly tightens for height adjustment.

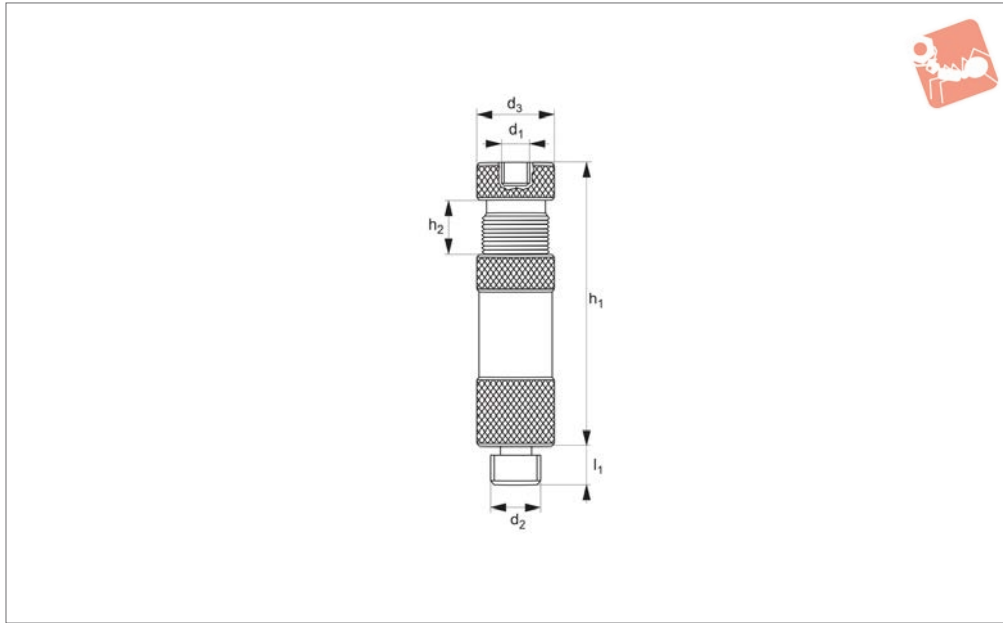
Order No.	d_1	d_2	d_3	h_1	h_2	Weight g
19350.W0028	M 8	12.7	28	50	38	70



CMM Fixturing Screws Jacks

M 8 threads

Gauging & Inspection



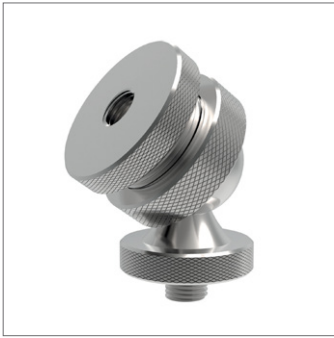
19352

GAUGING & INSPECTION

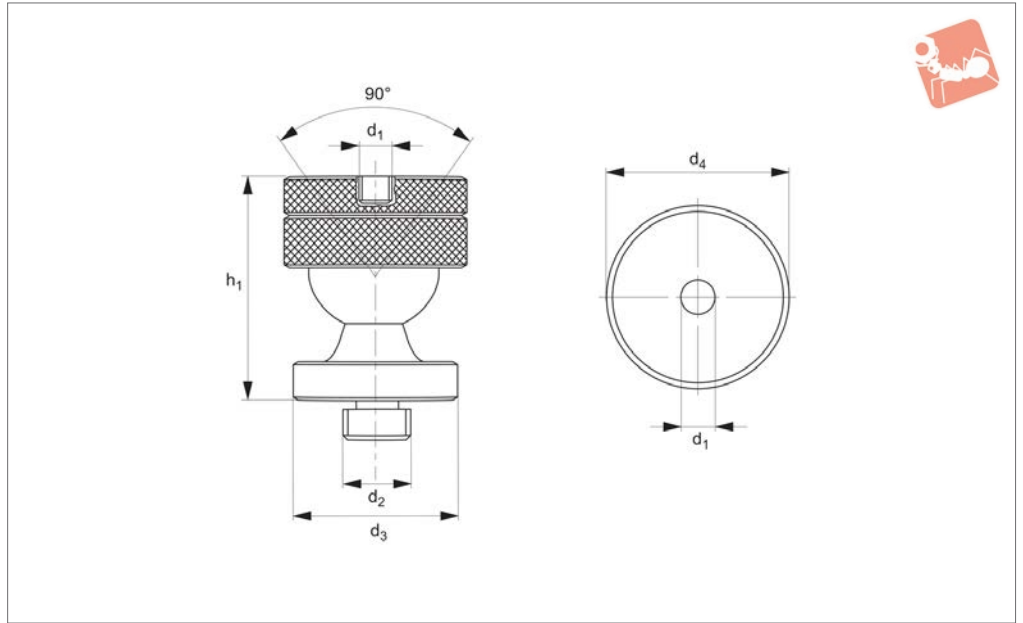
Material
Aluminium.

Important Notes
Allows for fine height adjustment during CMM probing.

Order No.	d ₁	d ₂	d ₃	h ₁ max.	h ₂ stroke	l ₁	Weight g
19352.W1945	M 8	M 8	19	44.5	8	6.4	88



19354



GAUGING & INSPECTION

Material

Ball: steel.
All other components: aluminium 6160.

Technical Notes

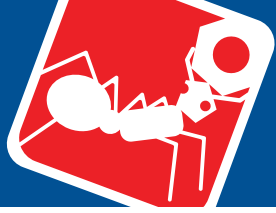
Pivots approximatively 45° from horizontal

in every direction.

Important Notes

For holding parts at an angle. Collar easily tightens on ball at variable angles.

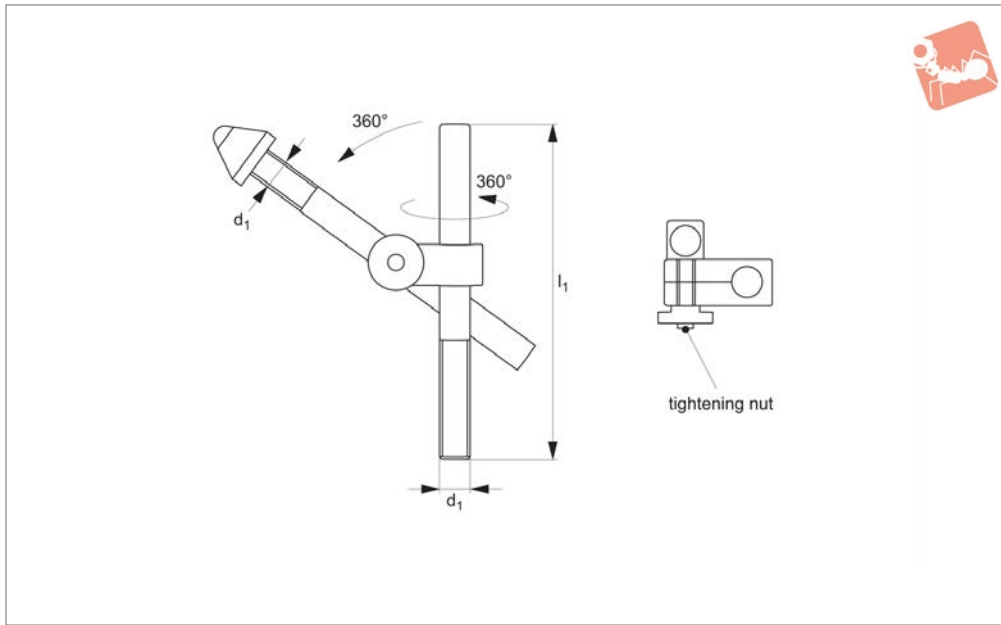
Order No.	d ₁	d ₂	d ₃	d ₄	h ₁	Weight g
19354.W2835	M 8	M 8	25	28.5	34	95



CMM Swivel Joint

M 8 threads

Gauging & Inspection



19358

GAUGING & INSPECTION

Technical Notes

Fully articulated adjustable stop, rotates in 360° in both horizontal, vertical plains. Fully XYZ adjustable.

Important Notes

Rotates from side-to-side and up and down. Arm extends and retracts. Rotating arm features thermoplastic cone for posi-

tioning a part without marring its surface.

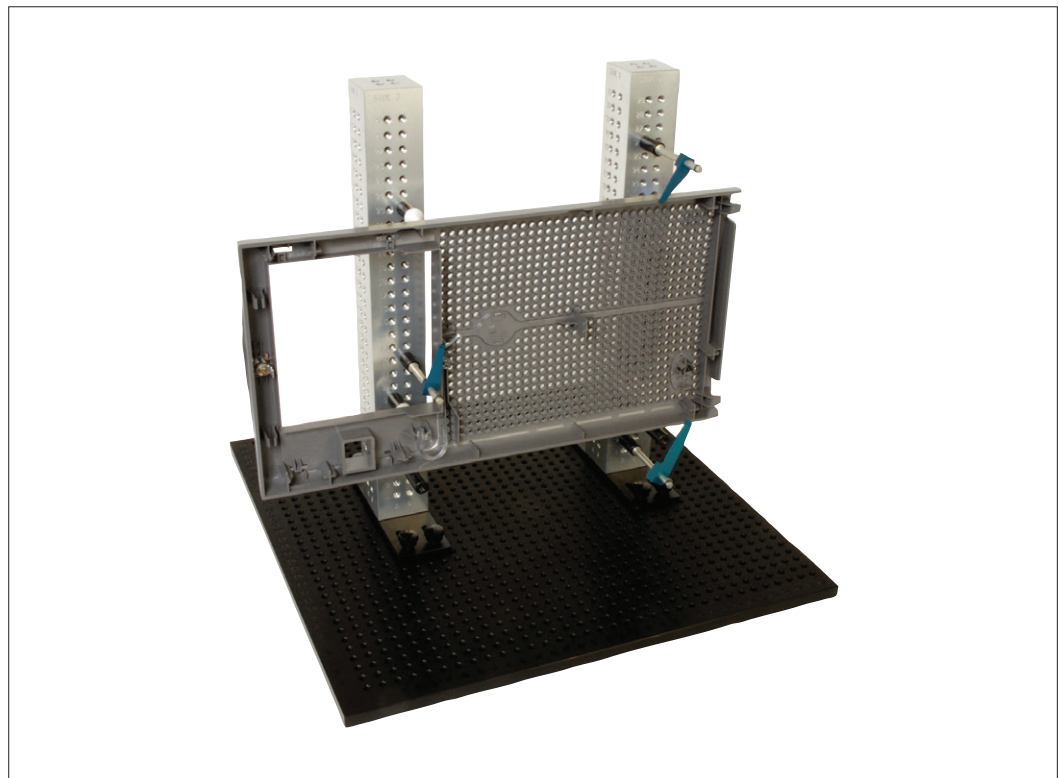
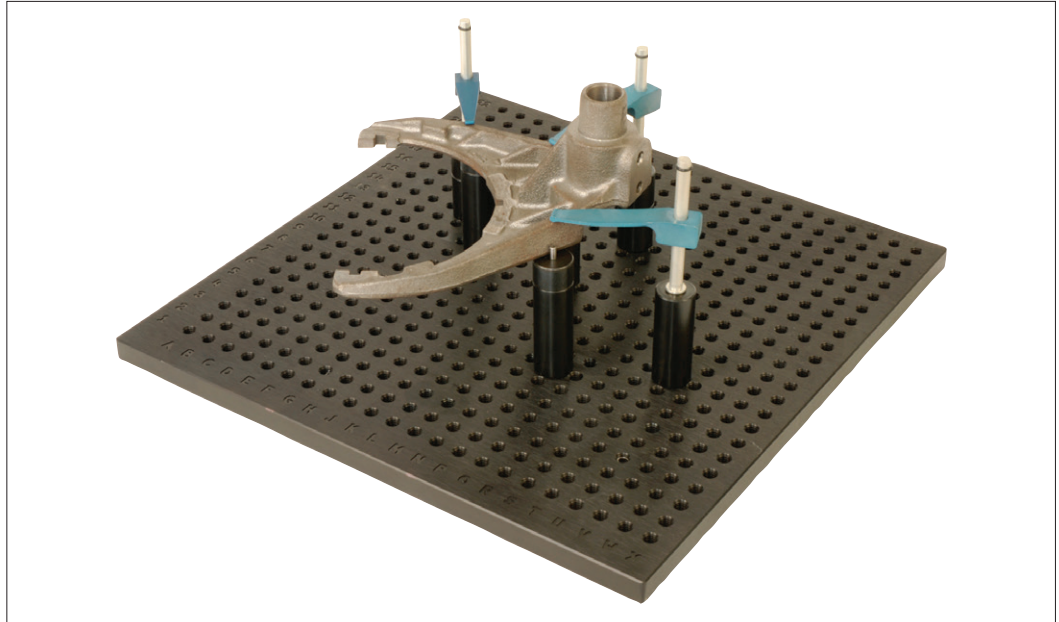
Order No.	d ₁	l ₁	Weight g
19358.W0008	M 8	100	134



Wixroyd's CMM fixturing system is designed for easy assembly and high repeatability, eliminating the need to build dedicated fixtures. The system offers a highly accurate and flexible solution of holding parts while probing on CMMs.

Flexible

A variety of component parts as well as complete kits are available; to enable setup of fixtures in minutes.

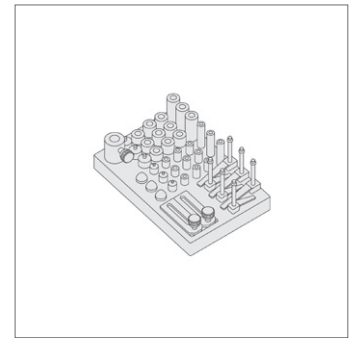
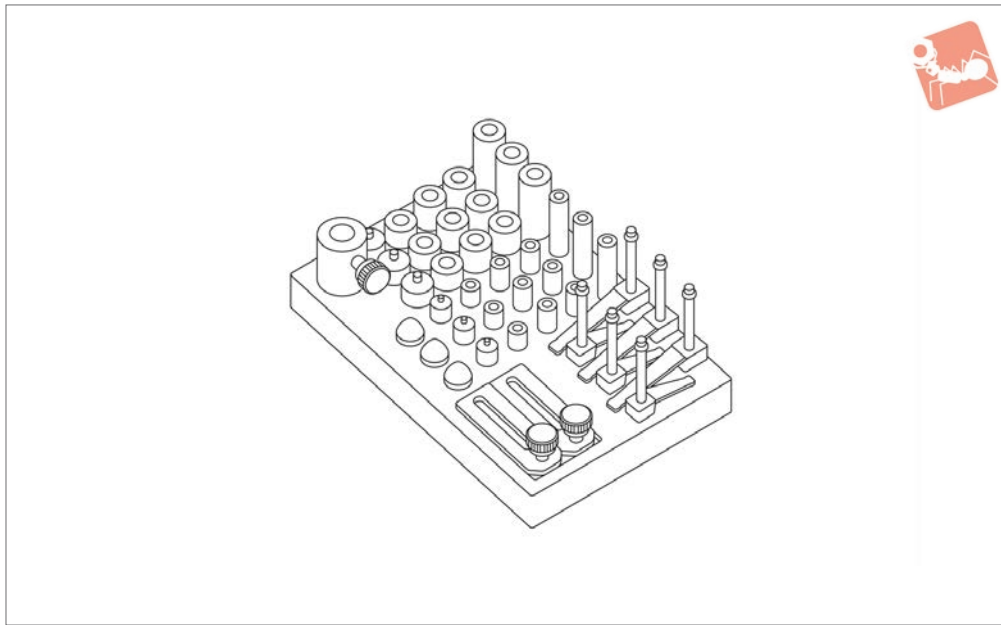


- Aluminium base plates – hole based system with alpha-numeric labelling for easy set-up and recording of fixture positions.
- Fixture towers – ideal for fixturing of large vertical components.
- Soft-touch clamps – non-marking clamps providing the ideal force for holding parts during CMM probing.
- Locating components – rest pads, vee pads for cylindrical parts, pin rests etc.



Basic CMM Fixturing Set for M 8 threads

Gauging & Inspection



19310

GAUGING & INSPECTION

Technical Notes

Designed for clamping non-magnetic parts on CMM tables.

Important Notes

M 8 coarse thread. Basic set of workholding

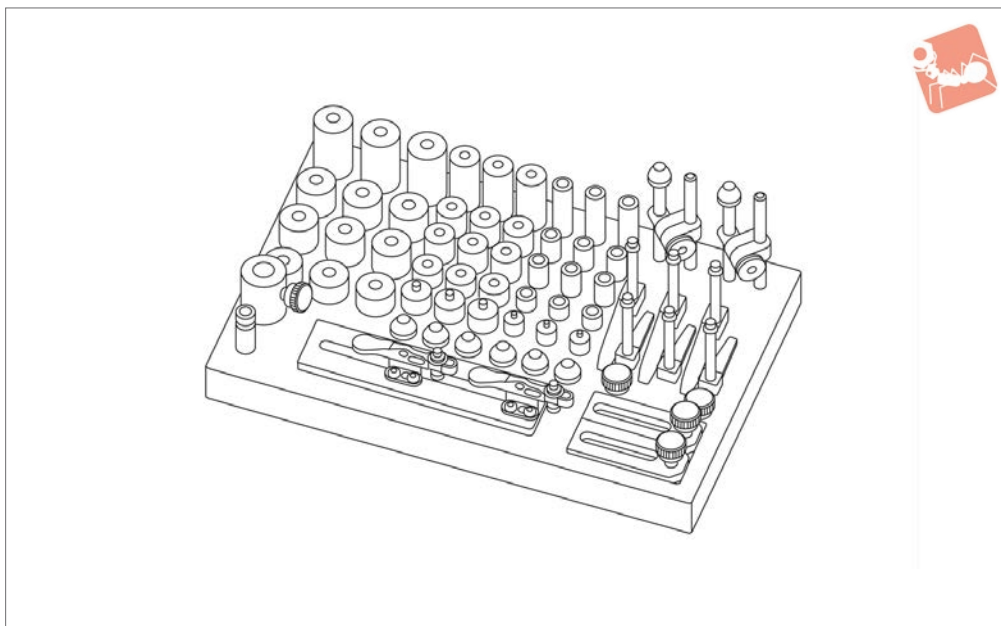
components for fixturing of components on CMMs. Components are of lightweight materials: aluminium, plastic etc. to avoid damage to components. Supplied on wooden holder for easy and tidy storage.

For CMM fixturing plates and towers see 19300 and 19302.

Order No.	Soft touch clamp 19320	CMM fixturing stand-off 19330		CMM fixturing stand-off with pin 19331	CMM fixturing positioning cone 19332	CMM fixturing adj. positioner 19354	CMM fixturing stand-off adjustable 19350	Weight g
19310.W0008	.W0008 x 3pcs .W0012 x 3pcs	.W1320 x 3pcs .W1350 x 3pcs .W1925 x 6pcs	.W1325 x 6pcs .W1920 x 3pcs .W1950 x 3pcs	.W1325 x 3pcs .W1925 x 3pcs	.W001613 x 3pcs	.W2835 x 2pcs	.W0028 x 1pc	2800



19312



Technical Notes

M8 coarse thread. Comprehensive set of workholding components for fixturing

components on CMMs. Components are of lightweight materials; aluminium, plastic etc. to avoid damage of workpieces. Supp-

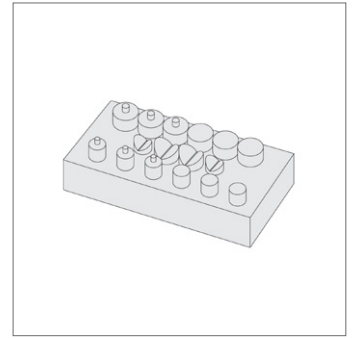
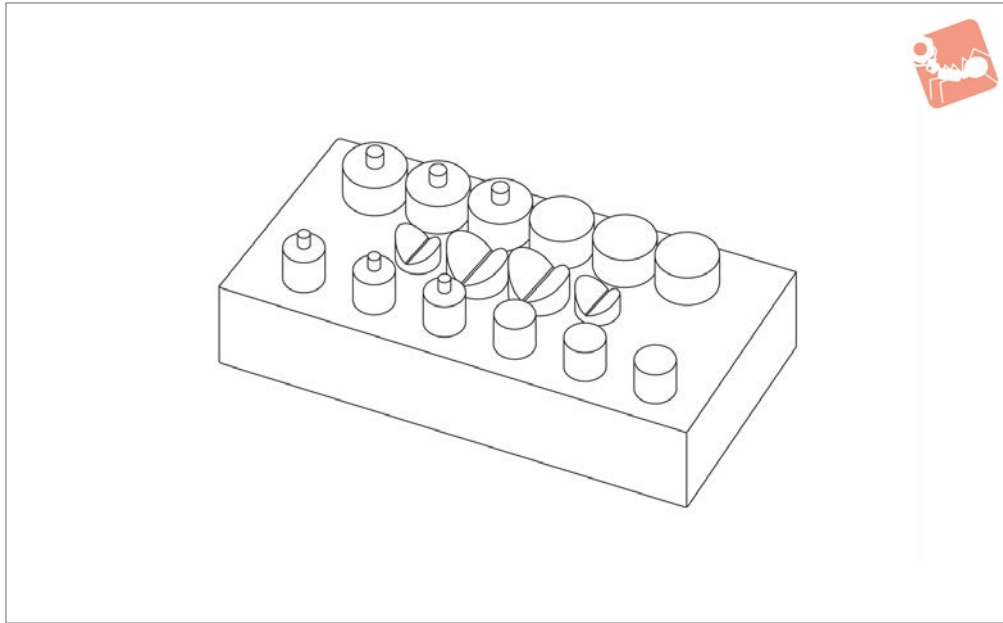
plied on a wooden holder for easy and tidy storage. For CMM fixturing plates and towers see parts 19300 and 19302.

Order No.	Soft touch clamp 19320	CMM fixturing stand-off 19330			Toggle clamp 19322	Weight g
19312.W0008	.W0008 x 3pcs .W0012 x 3pcs	.W1320 x 3pcs .W1325 x 6pcs .W1350 x 3pcs .W1920 x 3pcs .W1925 x 6pcs .W1950 x 3pcs .W2520 x 3pcs .W2525 x 6pcs .W2550 x 3pcs			.W0075 x 2pcs	4600
Order No.	CMM fixturing stand-off with pin 19331	CMM fixturing positioning cone 19332	CMM fixturing adj. positioner 19354	CMM fixturing stand-off adjustable 19350	CMM fixturing screw jack 19352	CMM fixturing adjustable stop 19358
19312.W0008	.W1325 x 3pcs .W1925 x 3pcs	.W001613 x 3pcs	.W2835 x 2pcs	.W0028 x 1pc	.W1945 x 1pc	.W0008 x 2pcs



CMM Fixturing Magnetic Stand-off Set for M 8 threads

Gauging & Inspection



19314

GAUGING & INSPECTION

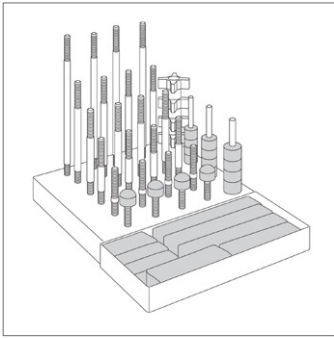
Material

Magnets in brass sleeves, in wooden holder.

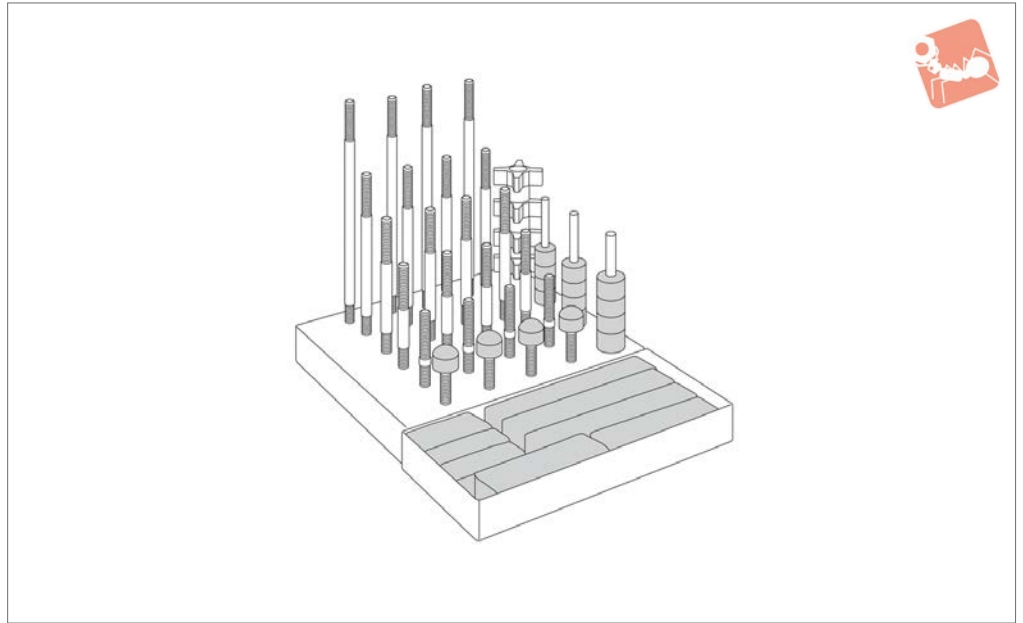
Tips

Use with steel and iron components.

Order No.	CMM fixturing magnetic rest buttons 19336	CMM fixturing magnetic stand-off with pin 19337	CMM fixturing magnetic vee stand-off 19338
19314.W0008	.W1325 x 3pcs .W1925 x 3pcs	.W1325 x 3pcs .W1925 x 3pcs	.W1325 x 2pcs .W2525 x 2pcs



19370



Material

Clamps, rest feet: nylon 101.
 Studs, coupling nuts and washers: steel.
 Supplied in metal tray for improved organi-

sation.

Tips

Lightweight components reduce risk of

damage to the CMM table.

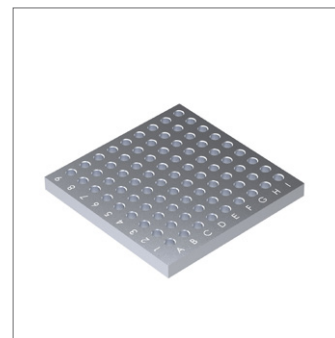
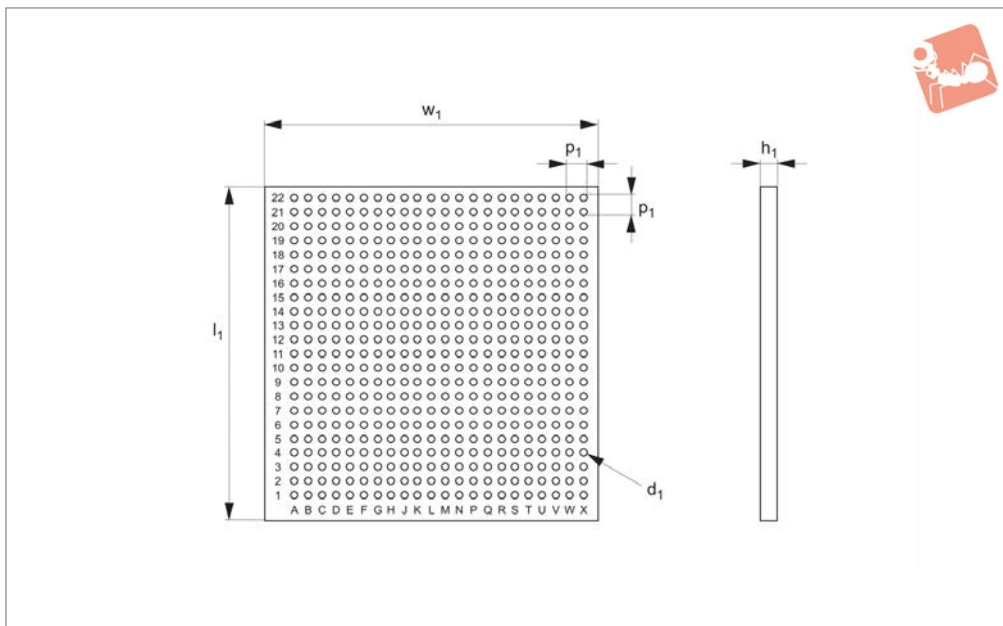
Order No.	Thread size	Studs	Nylon clamps	Extension nuts	Nylon star knob	Support feet	Nylon washers	Weight g
19370.W0008	M 8	50mm x 4pcs	63mm x 4pcs 90mm x 4pcs 115mm x 4pcs	M 8 x 4pcs	M 8 x 4pcs	M 8 x 4pcs	for M 8 x 8pcs	2495
		75mm x 4pcs						
		100mm x 4pcs						
		125mm x 4pcs						
		150mm x 4pcs						
19370.W0010	M10	50mm x 4pcs	63mm x 4pcs 100mm x 4pcs 150mm x 4pcs	M10 x 4pcs	M10 x 4pcs	M10 x 4pcs	for M10 x 8pcs	2857
		75mm x 4pcs						
		100mm x 4pcs						
		125mm x 4pcs						
		150mm x 4pcs						
19370.W0012	M12	50mm x 4pcs	63mm x 4pcs 100mm x 4pcs 150mm x 4pcs	M12 x 4pcs	M12 x 4pcs	M12 x 4pcs	for M12 x 8pcs	4991
		75mm x 4pcs						
		100mm x 4pcs						
		125mm x 4pcs						
		150mm x 4pcs						



Fixture Plates for CMMs

M 8 threads

Gauging & Inspection



19300

GAUGING & INSPECTION

Material

Aluminium, hard anodized (black).

Technical Notes

CMM fixture plates can be mounted to the

surface plate of your CMM by using step blocks and clamps or by drilling mounting holes into the plate which correspond to the inserts on your surface plate.

Tips

Soft touch clamps 19320 are perfect for clamping in CMM fixturing applications.

Order No.	l_1	d_1	w_1	p_1	h_1
19300.W3030	300	M 8	300	15	13
19300.W4545	450	M 8	450	15	13
19300.W6060	600	M 8	600	15	19