

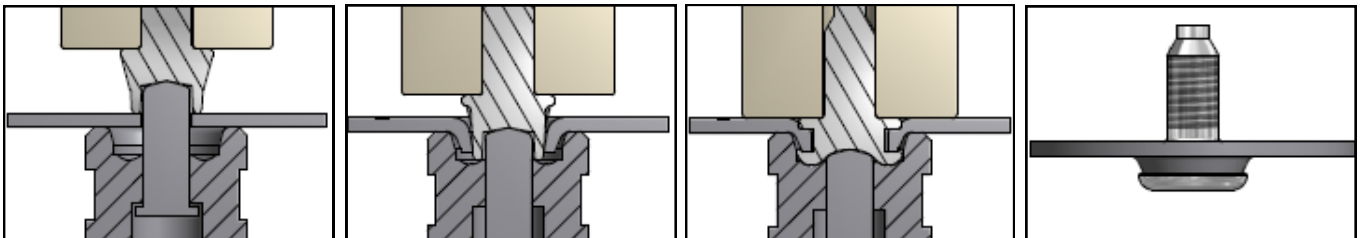


Flangeform Clinch Studs are threaded fasteners with unique ribs designed for installation into thin gauge materials. The fastener plunges the pre-punched hole and wraps itself around the material whilst the ribs embed themselves providing an integral high strength attachment point.

Flangeform studs are available with dog-points, plain shank & shouldered

## PROCESS

- **HOLE PREPERATION**—A pre-punched or drilled hole is required with a tolerance of +/- 0.1mm. Refer to product data sheet for hole sizes.
- **SHEET PREPERATION**— Flangeform is suited up to 80Rb.
- **SHEET THICKNESS**—Refer to the product data sheet for material thickness range
- **INSTALLATION**—Can be used on progression, transfer, off-line mechanical / hydraulic presses using autofed or manual technique.
- **TOOLING**—Mini-Die (bottom tool) will vary depending upon the material thickness, hole size and hardness



Material is placed over the mini-die and the stud located in the top tool

Force is applied to the stud which enables it to plunge the material

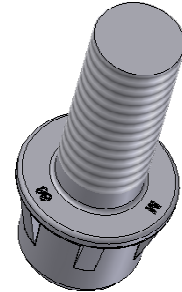
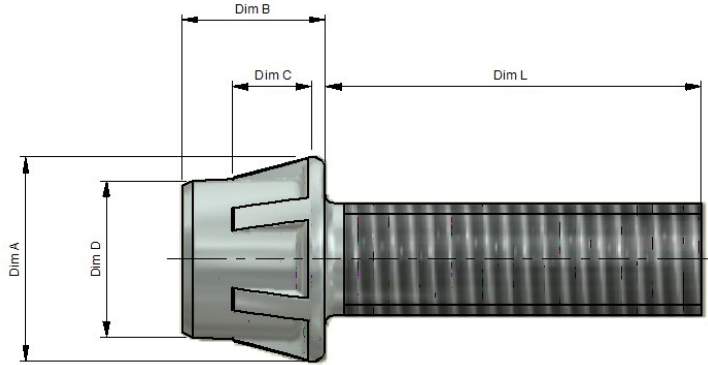
The stud is formed around the parent material by the mini-die profile

The stud is flush with the parent material and integral.

## ADVANTAGES

- High strength attachment point in thin materials
- Accurate & positive positioning
- High bending moment resistance
- Can be produced in a threaded, plain shank & shouldered design
- Pull & push out strength is of similar performance,
- Provides a flush mounting surface
- No weld splatter / fumes—environmentally friendly process
- Can be installed into 2 layers of material
- Ideally suited to multiple insertion and automated assembly in die or off line.

**Technical data– Stud**



Thread Size	Flange Dia. A	Overall Head Height B	Splined Length C	Can Dia. D	Stud Length Range L	Material Thickness mm	Hole Size	Tonnage
							Typical	Typical
M4	8.8	5.6	2.75	6.7	8 - 20	0.7	4.6	2.5
						1	4.6	3
						1.2	4.6	3
						1.5	4.7	3
M5	8.8	5.6	2.75	6.7	8 - 20	0.7	4.6	2.5
						1	4.6	3
						1.2	4.6	3
						1.5	4.7	3
M6	10.85	7.6	4.2	8.32	8 - 35	0.7	4.8	3.5
						1	4.8	3.5
						1.2	5.5	4
						1.5	5.7	4.5
						2	5.8	5
M8	13.12	9.1	4.95	9.97	10 - 70	0.7	5.1	5
						1	5.1	5
						1.2	5.9	5.5
						1.5	6.5	7.5
						2	6.5	8
						2.5	6.6	9.5
M10	17.7	10.85	5.65	13.3	15 - 70	0.7	6.9	5
						1	6.9	5
						1.2	8	5.5
						1.5	8	7.5
						2	8.5	8
						2.5	8.6	9.5
						3	8.9	10

**MATERIAL**

Studs

Steel BS EN ISO 10263-2. Finished studs to conform to ISO 898-1 Grade 4.8 mechanical properties.

Or

Steel BS EN ISO 10263-4. Finished studs to conform to ISO 898-1 Grade 8.8 and above mechanical properties. Other grades available.

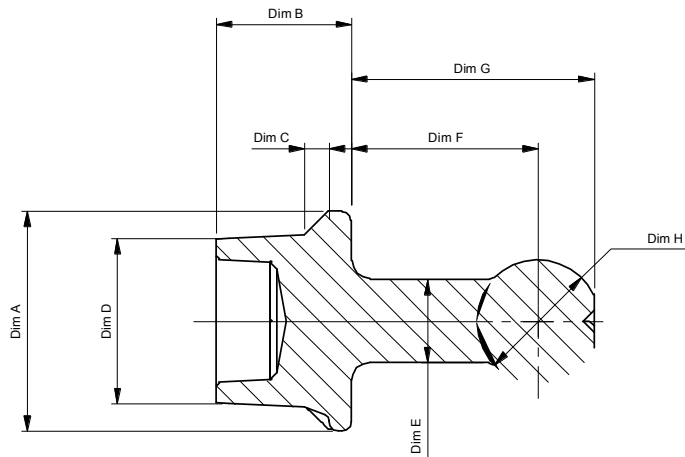
**THREAD**

Standard ISO Metric coarse pitch series to ISO 965/BS 3643-6g. Gauge tolerances in accordance with ISO 1502 / BS919 used to determine thread acceptability. After plating, threads must be capable of accepting a Go gauge of basic size. Other thread forms available.

**FINISH**

Zinc & Clear trivalent passivation as standard, other plating finishes available

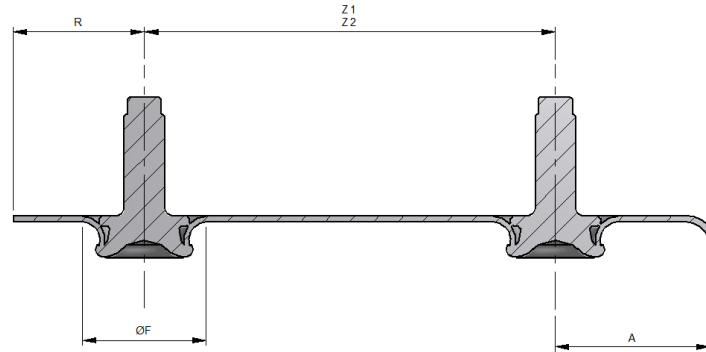
Technical data—Ball Stud



Head Size	Flange Dia. A	Overall Head Height B	Spline Length C	Can Dia. D	E	F	G	H	Material Thickness	Hole Size	Tonnage
									mm	Typical	Typical
M6	13.1	9.1	4.95	9.97	6.7	5-15	10-20	10	0.7	4.8	3.5
									1	4.8	3.5
									1.2	5.5	4
									1.5	5.7	4.5
									2	5.8	5
M8	17.7	10.85	2	13.3	6.7	5-15	10-20	10	2.5	6.2	5.5
									0.7	5.1	5
									1	5.1	5
									1.2	5.9	5.5
									1.5	6.5	7.5
									2	6.5	8
2.5	6.6	9.5									
									3	6.9	10

Designs requiring different lengths & ball diameters are possible, please contact the engineering department for further information.

## INSTALLATION DATA



Flangeform studs manual emplacement data.						
Stud size	Dimension H	Dimension ØF	Dimension R min	Dimension A min	*Dimension Z1	*Dimension Z2
M4/M5	2.5	9.5	7.0	9.0	16.0	13.0
M6	3.8	12.5	8.5	10.0	19.0	16.0
M8	4.0-5.0	15.0	10.0	12.0	22.0	19.0
M10	5.5-7.5	19.0	14.0	15.0	28.5	24.0

\*Dimension Z1 When studs are emplaced manually simultaneously.

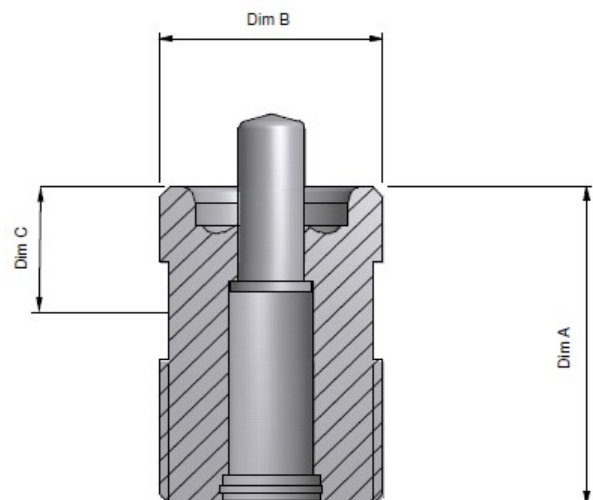
\*Dimension Z2 When studs are emplaced manually one at a time.

These dimensions relate to when standard mini –dies are used. Mini-dies can be modified & tailored to customer needs to achieve closer A & Z dimensions.

## MINI DIE INSERTION TOOL DIMENSIONS

Mini-die tools are specific for each metric / imperial size of Flangeform stud and material thickness. This data is required to choose the correct mini-die for the application.

Size	Height A	Diameter B	Groove Centre C
M4 / M5	20.70 / 20.80	15.989 / 16.000	8
M6	27.55 / 27.65	18.989 / 19.000	8
M8	32.00 / 32.10	21.963 / 21.975	12.5
M10	38.00 / 38.10	28.463 / 28.475	12.5



## HOW TO SPECIFY

- **PRODUCT CODE**—The standard stud design is code 30, with a dog-point is 3D
- **THREAD CODE**— Refer to thread code matrix
- **GRADE & PLATING CODE**-Grade 8 is H, 9 is J. Standard plating is Zinc & Clear trivalent passivation (W)
- **STUD LENGTH**—This value determines the approximate length of stud

Part Number Layout / Meaning						
Product	-	Thread	-	Grade & Finish	-	Stud Length
30	-	M06	-	HW	-	20
30	-	M07	-	HW	-	20
30	-	M08	-	HW	-	20
30	-	M06	-	HW	-	20

## Thread Code Matrix

		M					
		4	5	6	8	10	12
Metric	Coarse - 6H	M04	M05	M06	M08	M10	M12
	Coarse - 6E	E04	E05	E06	E08	E10	E12
	Fine	N04	N05	N06	N08	N10	N12

Unified	Coarse	8-32	10-24	12-24	1/4-20	5/16-18	3/8-16	7/16-14	1/2-13
		CEG	CTE	CTV	C04	C05	C06	C07	C08
	Fine	8-36	10-32	12-28	1/4-28	5/16-24	3/8-24	7/16-20	1/2-20
		FEG	FTE	FTV	F04	F05	F06	F07	F08

## Performance Data

Stud Size	Material Thickness mm	Cold Rolled Mild Steel		
		Push-out	Pull-out	Torque-out
		Kn	Kn	Nm
M6	0.7	3	4	9
	1	7	7	9
	1.5	9	10	9
M8	0.7	3.9	4.7	19
	1	7.3	7.4	19
	1.5	11.9	11	19
	2	14	11.5	19
M10	0.7	4.8	4.5	
	1	6.5	9.7	36
	1.5	13.1	16	36
	2	17	16	36
	2.5	27.9	18	36
M12	1	7.3	9.6	
	1.5	10.8	15.2	80
	2	16.7	20	81
	2.5	28	20	84
	3	29	20	86

Note: The data provided above is for general guidance only and may vary depending upon material, hole size, tonnages & tooling. For specific advice and data please contact BAS Components technical centre.