

# Ground support

Product catalogue





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# Introduction

Epiroc designs and manufactures a diverse range of quality ground support products for various ground support applications.

Product categories include:

**Energy absorbing rockbolts:**

rockbolts designed for applications in high stress environments requiring high deformation and energy absorption capacity such as squeezing, rock burst and seismicity prone excavations.

**Quasi-static rockbolts:**

rockbolts designed for quasi-static loading conditions such as gravity induced ground movement.

**Pre-stressing units:**

inflatable devices designed for the safe and efficient installation of elongate support such as mine poles, timber packs, cribs and barrels.

**Synthetic mesh:**

synthetic mesh provides areal coverage for additional rockfall protection in applications where steel mesh may not be practical or has been damaged.

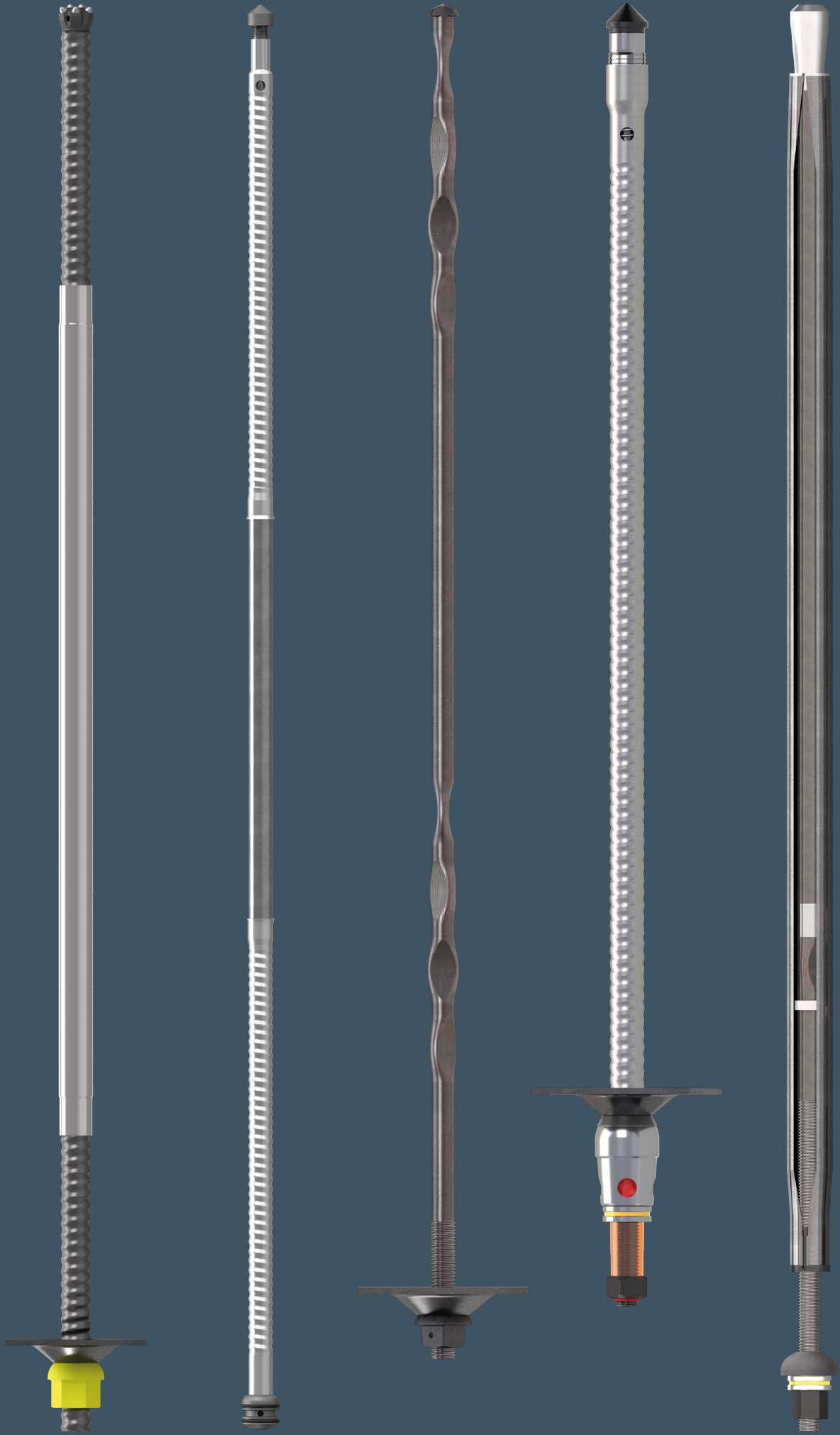
**Monitoring and warning devices:**

monitoring devices designed for immediate indication of changes in ground conditions to mining personnel active in the immediate vicinity.

# Energy absorbing rockbolts

Ductile energy absorbing rockbolts designed for applications requiring high deformation and energy absorption capacity.



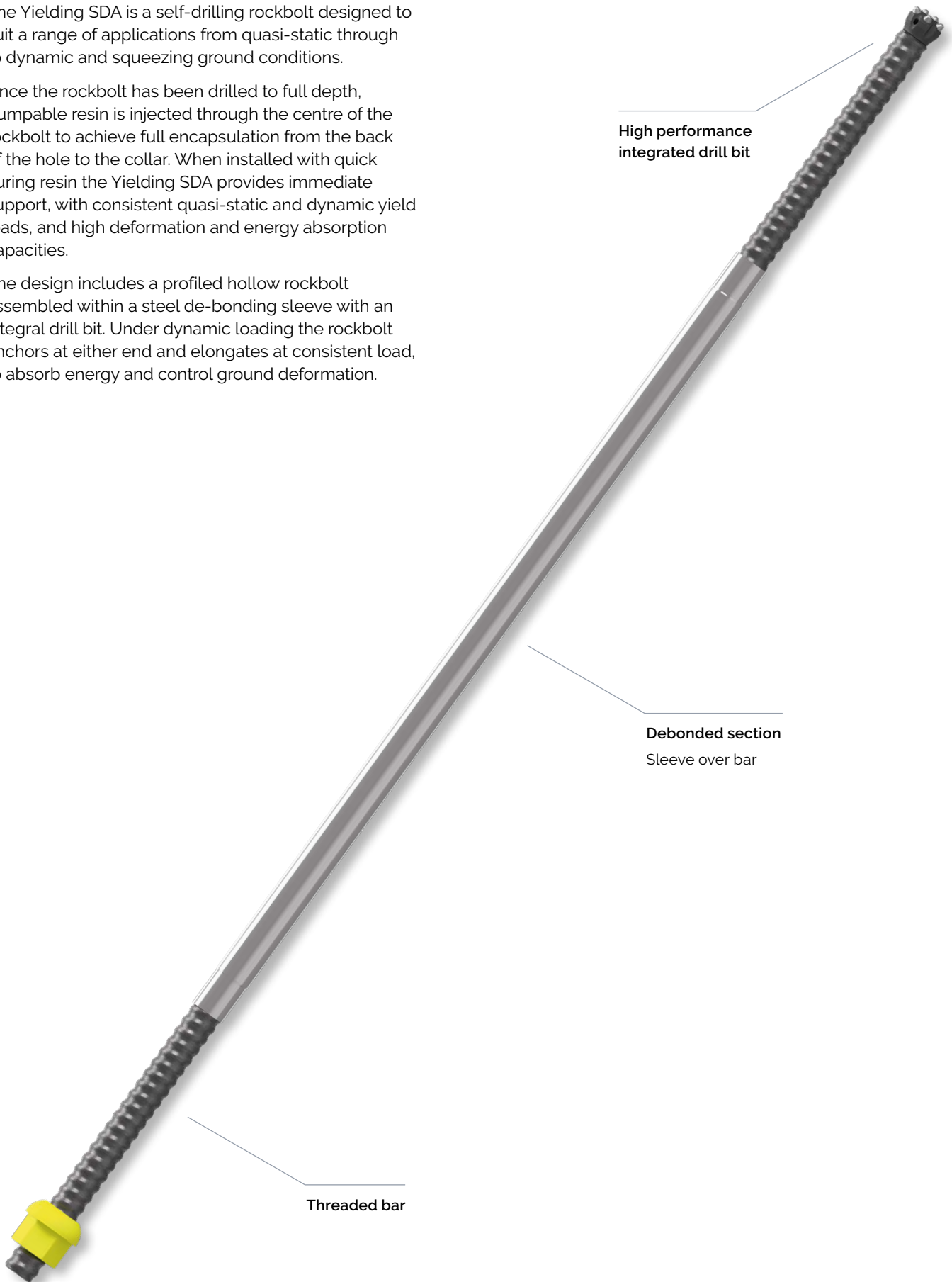


# Yielding SDA

The Yielding SDA is a self-drilling rockbolt designed to suit a range of applications from quasi-static through to dynamic and squeezing ground conditions.

Once the rockbolt has been drilled to full depth, pumpable resin is injected through the centre of the rockbolt to achieve full encapsulation from the back of the hole to the collar. When installed with quick curing resin the Yielding SDA provides immediate support, with consistent quasi-static and dynamic yield loads, and high deformation and energy absorption capacities.

The design includes a profiled hollow rockbolt assembled within a steel de-bonding sleeve with an integral drill bit. Under dynamic loading the rockbolt anchors at either end and elongates at consistent load, to absorb energy and control ground deformation.



High performance  
integrated drill bit

Debonded section  
Sleeve over bar

Threaded bar



# Technical information

## Technical information

Nominal bolt diameter (mm)	Ø28
Hole diameter (mm)	Ø38
Typical load capacity (kN)	250
Typical energy absorption (kJ)*	43
Typical elongation (mm)*	155

\* based on 2.4 m bolt length.

## Part numbers

### R28 Yielding SDA

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Black	Galvanised
2.4		100	9899 8565 92	On request



### R32 Yielding SDA

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Black	Galvanised
2.4		100	9899 8565 93	On request



# PAR1 Pumpable Bolt

The PAR1 Pumpable is a rockbolt designed to suit a range of applications from quasi-static through to dynamic and squeezing ground conditions.

The PAR1 Resin Bolt is installed with pumpable resin to provide immediate support, with consistent quasi-static and dynamic yield loads, and a high energy absorption capacity.

The design includes a smooth solid bar assembled within a steel grouting sleeve.

During installation resin is pumped through the grout sleeve to the top of the bolt, the resin then flows back down the support hole to complete encapsulation and anchoring of the installed bolt.

Under dynamic loading the rockbolt anchors at either end and elongates at consistent load, to absorb energy and control ground deformation.



**Chamfered tip**  
Guides bolt past borehole obstructions

**Grouting holes**  
Allows resin to enter annulus around bolt

**Steel grout sleeve**  
Robust conduit for resin to flow to back of hole  
Mechanical interlock at either end of sleeve  
Debonded in middle for elongation

**Ø20 mm high yield bar**

**Radial injection groove**  
Accommodates for radial misalignment of ports during injection

**Injection port**

**Internal annulus**  
Resin flows up the internal annulus to the back of the hole during the resin injection stage

**Integrated spherical seat**  
Washer plate alignment on irregular surfaces

**Injection seals**  
Seals moved from the nozzle to the bolt





# Technical information

## Technical information

Nominal bolt diameter (mm)	Ø32
Bar diameter (mm)	Ø20
Hole range (mm)	Ø38 – Ø44
Minimum yield load (kN)	154
Typical static load capacity (kN)	224
Typical energy absorption (kJ)*	50
Typical dynamic elongation (mm)*	200

\* based on 2.4 m bolt length.

## Part numbers

### PAR1-P Ø20

Bolt length (m)	Weight (kg)	Units per bundle	Part number
			Standard
1.8	7.8	50	9899 8559 50
2.1	8.8	50	9899 8559 51
2.4	9.8	50	9899 8550 47
2.7	10.8	50	9899 8559 53
3.0	11.8	50	9899 8559 54



# PAR1 Resin Bolt

The PAR1 Resin Bolt is a resin anchored rockbolt designed for dynamic and squeezing ground conditions. The PAR1 Resin Bolt can provide immediate pre-tensioned support, with consistent quasi-static and dynamic yield loads and a high energy absorption capacity. The two paddle sets of the PAR1 Resin Bolt assist in the mixing of resin during installation and anchor the smooth bolt within the cured resin.

The PAR1 Resin Bolt can be supplied in Ø20 mm or Ø22 mm bar depending on support requirements.



45° Crop



Tri-lobe tip

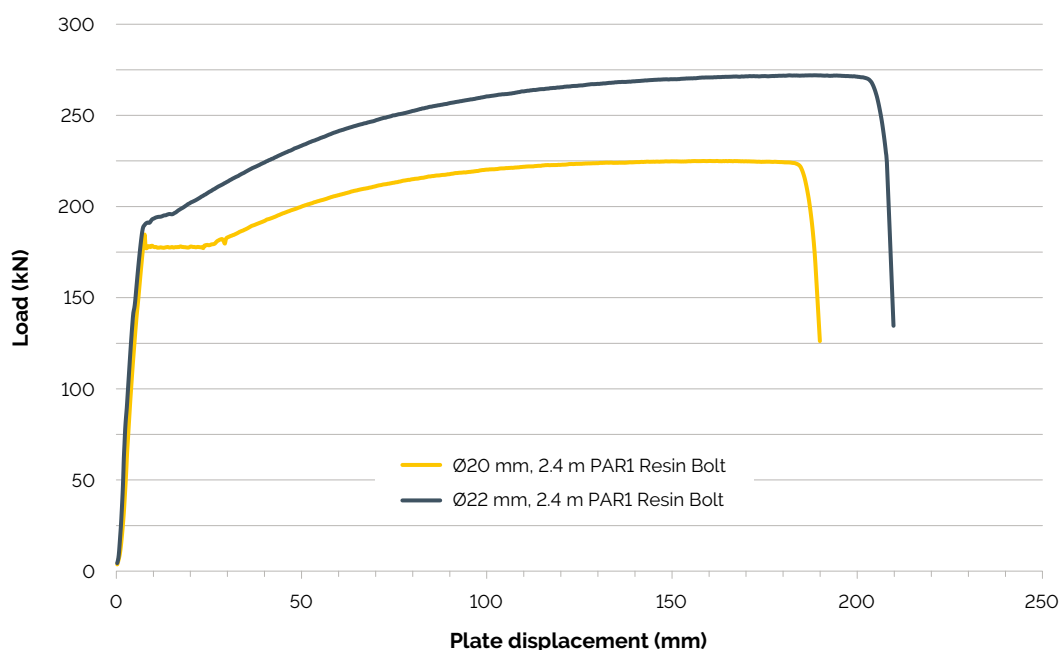




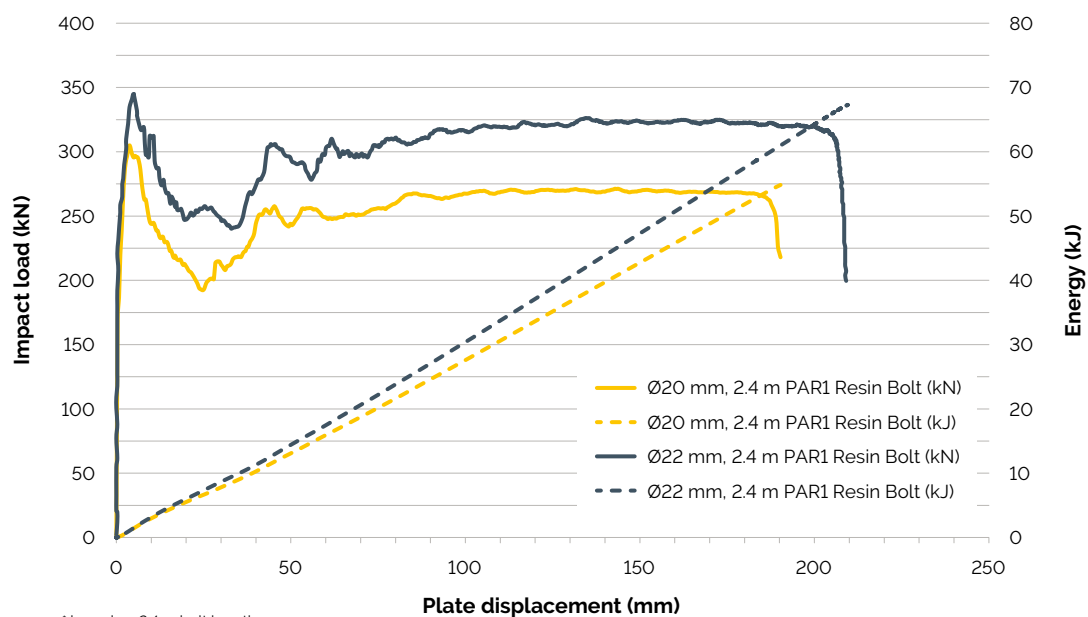
## Technical information

Bolt diameter (mm)		Ø20	Ø22
Hole range (mm)	45° tip	Ø32 - Ø38	
	Tri-lobe tip	Ø34 - Ø38	
Typical yield load (kN)		180	200
Typical static load capacity (kN)		224	272
Typical dynamic load capacity (kN)		250	300
Typical energy absorption (kJ)*		54	69
Typical elongation (mm)*		190	205
Suitable faceplates		P1RFACE1506 and P1RFACE1508	

\* based on 2.4 m bolt length.



\* based on 2.4 m bolt length.



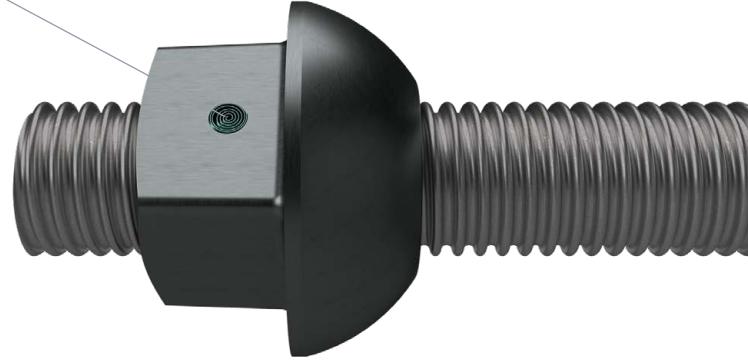
\* based on 2.4 m bolt length.

## Optional features

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### Shear pin:

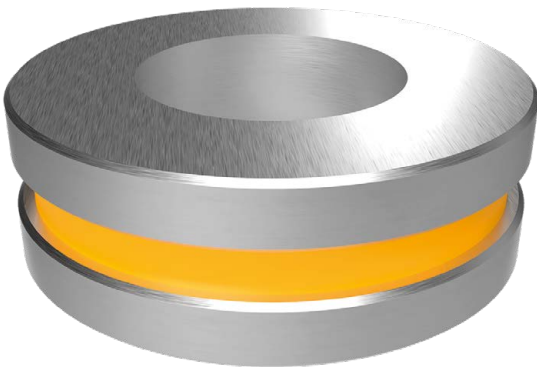
A shear pin allows the PAR1 Resin Bolt to spin inside the borehole in order to properly mix the resin. Once the resin has sufficiently cured, the pin shears under torque load to allow tensioning.



### Load indicator:

A load indicator confirms loading onto the faceplate. Once the predetermined load is exceeded, the colored indicator ring is squeezed radially outwards to provide visible indication of pre-tension.

Please note that load indicators must be factory fitted.



### Tri-lobe tip:

A tri-lobe tip aids in the centralisation of the PAR1 Resin Bolt in the borehole, as well as the piercing and shredding the resin cartridge to mitigate gloving.



# Part numbers

## PAR1 Resin Bolt Ø20 with hex nut, shear pin, spherical seat

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	4.4	200	9899 8550 48	9899 8550 53
2.1	5.2	200	9899 8550 49	9899 8550 54
2.4	5.9	200	9899 8550 50	9899 8550 55
2.7	6.7	200	9899 8550 51	9899 8550 56
3.0	7.4	200	9899 8550 52	9899 8550 57



## PAR1 Resin Bolt Ø20 with hex nut, spherical seat, shear pin, tri-lobe tip

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	4.4	200	9899 8550 78	9899 8550 83
2.1	5.2	200	9899 8550 79	9899 8550 84
2.4	5.9	200	9899 8550 80	9899 8550 85
2.7	6.7	200	9899 8550 81	9899 8550 86
3.0	7.4	200	9899 8550 82	9899 8550 87



## PAR1 Resin Bolt Ø20 with dome nut

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	4.4	200	9899 8552 18	9899 8552 23
2.1	5.2	200	9899 8552 19	9899 8552 24
2.4	5.9	200	9899 8552 20	9899 8552 25
2.7	6.7	200	9899 8552 21	9899 8552 26
3.0	7.4	200	9899 8552 22	9899 8552 27



# Part numbers

## PAR1 Resin Bolt Ø20 with dome nut, tri-lobe tip

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	4.4	200	9899 8552 28	9899 8552 33
2.1	5.2	200	9899 8552 29	9899 8552 34
2.4	5.9	200	9899 8552 30	9899 8552 35
2.7	6.7	200	9899 8552 31	9899 8552 36
3.0	7.4	200	9899 8552 32	9899 8552 37



## PAR1 Resin Bolt Ø22 with hex nut, shear pin, spherical seat

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	5.4	200	9899 8552 38	9899 8552 43
2.1	6.3	200	9899 8552 39	9899 8552 44
2.4	7.2	200	9899 8552 40	9899 8552 45
2.7	8.1	200	9899 8552 41	9899 8552 46
3.0	9.0	200	9899 8552 42	9899 8552 47



**PAR1 Resin Bolt Ø22 with hex nut, spherical seat, shear pin, tri-lobe tip**

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	5.4	200	9899 8552 68	9899 8552 73
2.1	6.3	200	9899 8552 69	9899 8552 74
2.4	7.2	200	9899 8552 70	9899 8552 75
2.7	8.1	200	9899 8552 71	9899 8552 76
3.0	9.0	200	9899 8552 72	9899 8552 77



**PAR1 Resin Bolt Ø22 with dome nut**

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	5.4	200	9899 8554 18	9899 8554 21
2.1	6.3	200	9899 8553 20	9899 8554 22
2.4	7.2	200	9899 8550 42	9899 8554 23
2.7	8.1	200	9899 8554 19	9899 8554 24
3.0	9.0	200	9899 8554 20	9899 8554 25



**PAR1 Resin Bolt Ø22 with dome nut, tri-lobe tip**

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.8	5.4	200	9899 8554 26	9899 8554 30
2.1	6.3	200	9899 8554 27	9899 8554 31
2.4	7.2	200	9899 8550 45	9899 8554 32
2.7	8.1	200	9899 8554 28	9899 8554 33
3.0	9.0	200	9899 8554 29	9899 8554 34

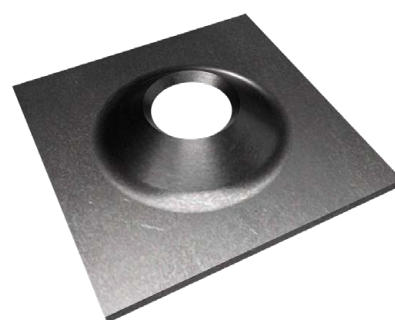
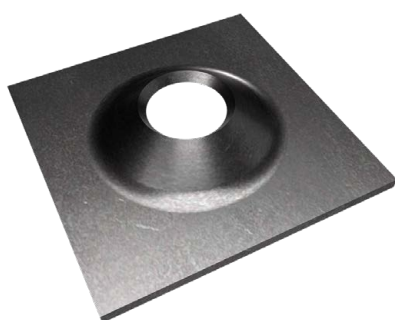




# Part numbers

## PAR1 Resin Bolt faceplates

Description	P1RFACE1506		P1RFACE1508	
Applicable bolt diameters (mm)	Ø20, Ø22		Ø20, Ø22	
ASTM grade	4		7	
Typical load capacity (kN)	206		300	
Geometry (mm)	152 x 152		152 x 152	
Hole diameter (mm)	Ø40		Ø40	
Thickness (mm)	6		8	
Unit weight (kg)	11		14	
Corrosion protection	Black	Galvanised	Black	Galvanised
Part number	9899 8560 16	9899 8560 45	9899 8560 46	9899 8560 47

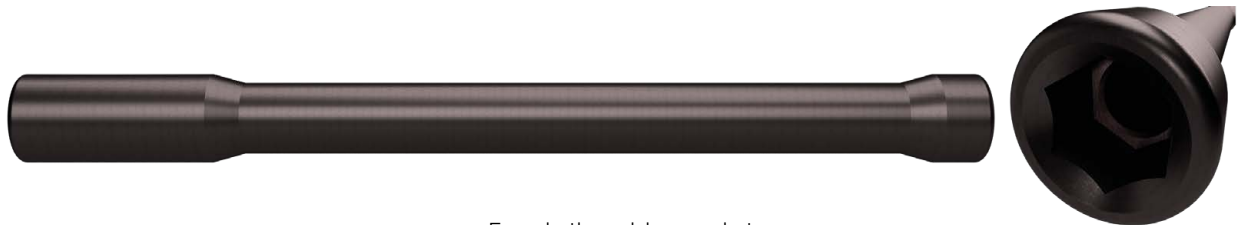


## PAR1 Resin Bolt accessories

Description	Major diameter (mm)	Thread type	Socket type	Nut shape	Tool length (m)	Unit weight (kg)	Part number
Installation Tool T38 x Star 28 A/F	55	T38 Female	Star 28A/F	Square	1.05	13.0	9899 8565 08
Installation Tool T38 x Hex 32 A/F	55	T38	Hex 32 A/F	Hex	0.6	6.5	9899 8565 28
					0.9	10.5	9899 8775 01
Installation Tool T38 x Hex 36 A/F	55	T38 Female	Hex 36 A/F	Hex	0.6	6.5	9899 8565 31
					0.9	10.5	9899 8565 42
Installation Tool R38 x Hex 32 A/F	55	R38	Hex 32 A/F	Hex	0.6	6.5	9899 8565 27
					0.9	10.5	9899 8565 29
Installation Tool R38 x Hex 36 A/F	55	R38 Female	Hex 36 A/F	Hex	0.6	6.5	9899 8565 63
					0.9	10.5	9899 8565 32



Female thread, star socket



Female thread, hex socket

# MP1 Bolt

The MP1 Bolt is a fully encapsulated, end anchored yielding bolt for mechanized installations. The end anchor provides immediate support upon installation and additional anchorage post encapsulation of the installed MP1 Bolt. To aid installation, the end anchor is shielded by a steel sleeve and is only activated once the MP1 Bolt is fully inserted into the support hole. A specially designed system ensures easy mechanized or manual encapsulation of the installed MP1 Bolt with pumpable resin or grout.



**Self activating shell**  
Protected during installation  
Full bar load capacity on activation

**Distal paddle set**  
Mechanical interlock with the grout

**Rifled sleeve**  
Conduit for grout flow to the distal end of the hole  
Mechanical interlock between rock, grout, sleeve and the bar

**Ø20 mm high yield bar**

**Proximal paddle set**  
Reduce load transfer to washer plate

**Grout seat**  
Integrated load indicator  
Integrated spherical seat

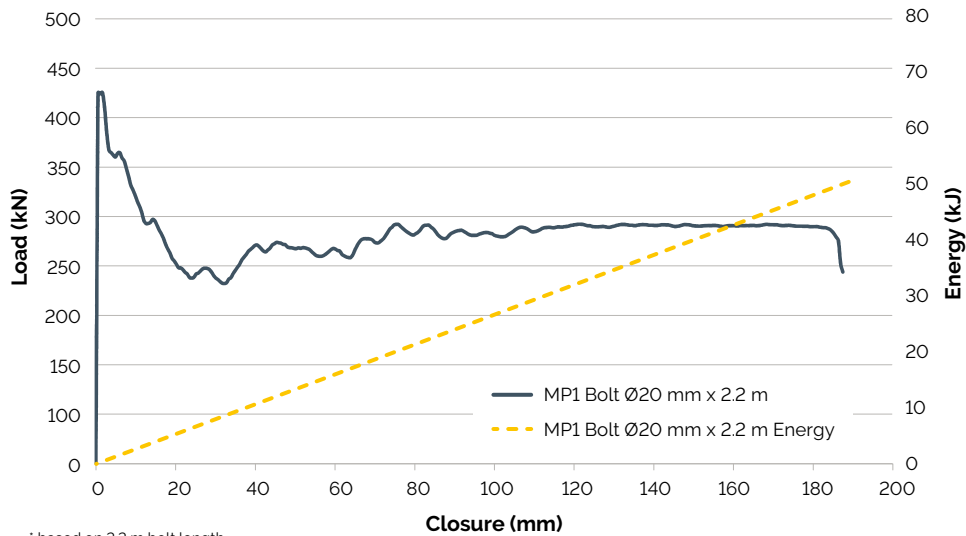
# Technical information

## Technical information

Bar diameter (mm)	Ø20
Hole size (mm)	Ø38 - Ø43
Grout sleeve diameter (mm)	Ø22
Typical yield load (kN)	235

Typical static load capacity (kN)	291
Typical dynamic load capacity (kN)	250
Typical energy absorption (kJ)*	53
Typical elongation (mm)*	193

\* based on 2.2 m bolt length



## Part numbers

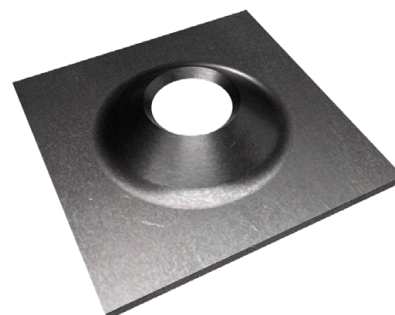
### MP1 Bolt Ø20, Ø38-43 shell, with grout nozzle pins

Bolt length (m)	Weight (kg)	Units per bundle	Part number
1.8	TBC	100	9899 8555 07
2.1	TBC	100	9899 8555 08
2.4	TBC	100	9899 8555 09
3.0	TBC	50	9899 8555 10



### MP1 Bolt faceplates

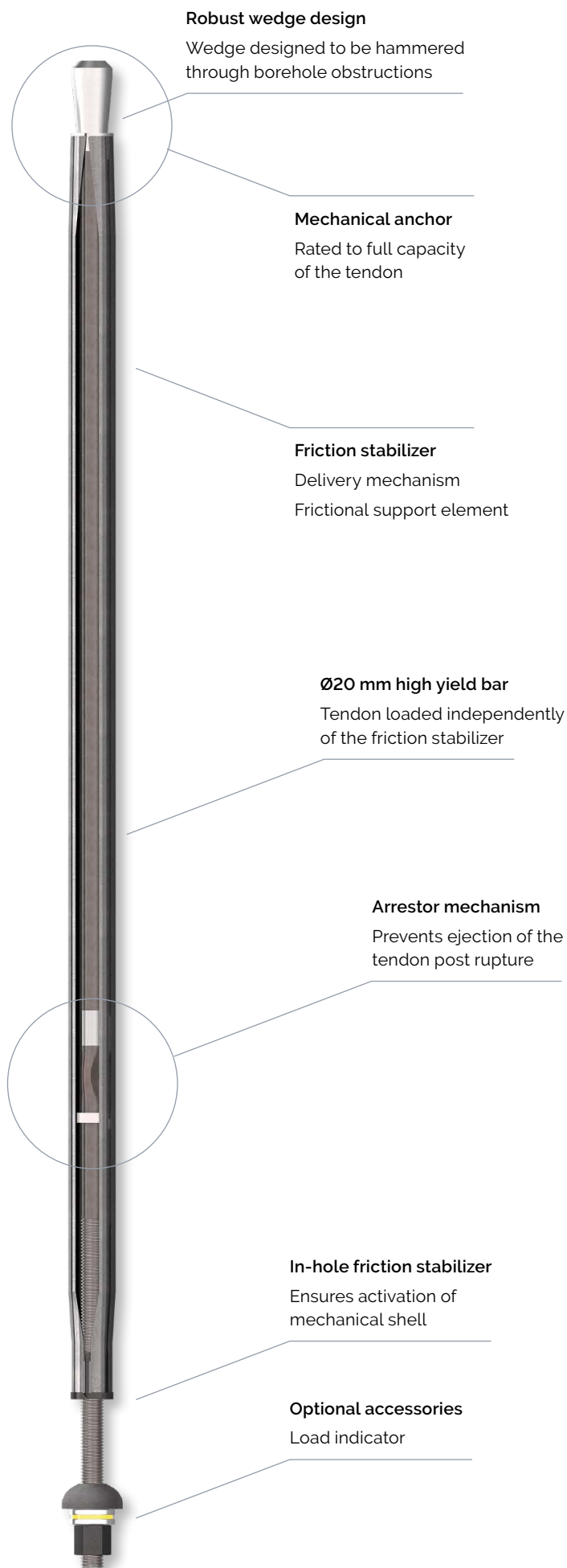
Description	PIRFACE1506
ASTM grade	4
Typical load capacity (kN)	206
Geometry (mm)	152 x 152
Hole diameter (mm)	Ø40
Thickness (mm)	6
Unit weight (kg)	1.1
Corrosion protection	Black
Part number	9899 8560 16



# Vulcan Bolt

The Vulcan Bolt is an integrated primary and secondary support system for the absorption of energy in squeezing and dynamic ground conditions. The Vulcan Bolt provides full support upon installation with a high deformation and energy absorption capacity.

The design creates an active support system with a full column frictional and mechanical anchorage without the use of resin or grout. By design the Vulcan Bolt has excellent resistance to shear. The Vulcan Bolt delivers an improved efficiency to the current support cycle and is conventionally installed with mechanized equipment. A positive clamping force is introduced into the rock mass which can be visually audited with the inclusion of a load indicator.





# Technical information

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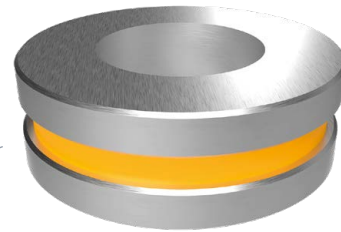
## Technical information

Friction tube diameter (mm)	Ø39	Ø46
Hole range (mm)	Ø35 - Ø38	Ø42 - Ø45
Bar diameter (mm)	Ø20	
Typical static load capacity (kN)	216	
Typical energy absorption (kJ)*	35	
Typical elongation (mm)*	150	

\* based on 2.4 m length bolt

## Optional features

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### Load indicator:

A load indicator confirms loading onto the faceplate. Once the predetermined load is exceeded, the colored indicator ring is squeezed radially outwards to provide visible indication of pre-tension.

## Part numbers

### Vulcan Bolt V Ø20 x Ø39 with hex nut, spherical seat

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Hot dip galvanised
1.8	8.5	50	9899 8650 22	9899 8650 23
2.1	10.0	50	9899 8650 24	9899 8650 25
2.4	11.5	50	9899 8650 26	9899 8650 27
2.7	13.0	50	9899 8650 28	9899 8650 29
3.0	14.5	50	9899 8650 30	9899 8650 31



### Vulcan Bolt V Ø20 x Ø46 with hex nut, spherical seat

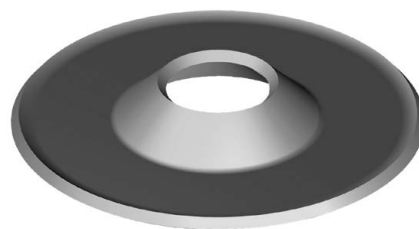
Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Hot dip galvanised
1.8	11.0	50	9899 8650 32	9899 8650 33
2.1	12.5	50	9899 8650 34	9899 8650 35
2.4	14.0	50	9899 8650 36	9899 8650 37
2.7	15.5	50	9899 8650 38	9899 8650 39
3.0	17.0	50	9899 8650 40	9899 8650 41



# Vulcan Bolt faceplates

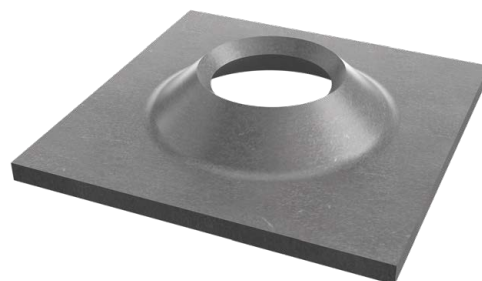
## Round domed plate

Nominal capacity (kN)	246	
Geometry (mm)	Ø200	
Thickness (mm)	6	
Hole diameter (mm)	Ø50	
Unit weight (kg)	15	
Corrosion protection	Black	Galvanised
Part number	9899 8565 35	9899 8565 36



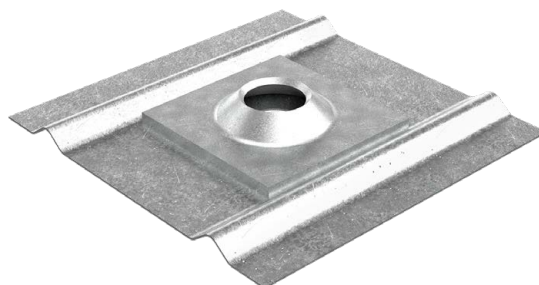
## Square domed plate

Nominal capacity (kN)		
Geometry (mm)	150 x 150	
Thickness (mm)	6	
Hole diameter (mm)	Ø49	
Unit weight (kg)	13	14
Corrosion protection	Black	Galvanised
Part number	9899 8660 03	9899 8660 04



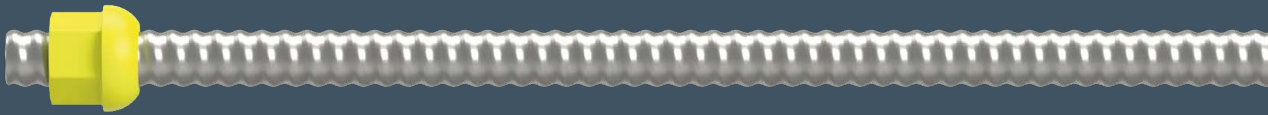
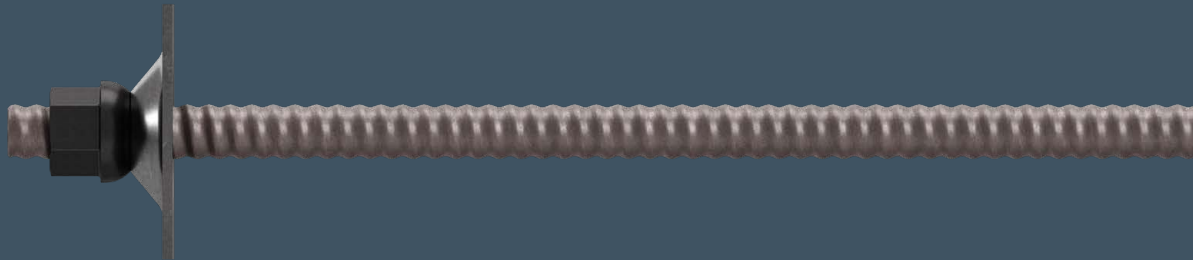
## Combi-plate

Nominal capacity (kN)		
Geometry (mm)	300 x 290	
Thickness (mm)	6	
Hole diameter (mm)	Ø49	
Unit weight (kg)	15	16
Corrosion protection	Black	Galvanised
Part number	9899 8565 48	9899 8565 49



# Quasi-static rockbolts

Rockbolts designed for quasi-static loading conditions such as gravity induced ground movement.

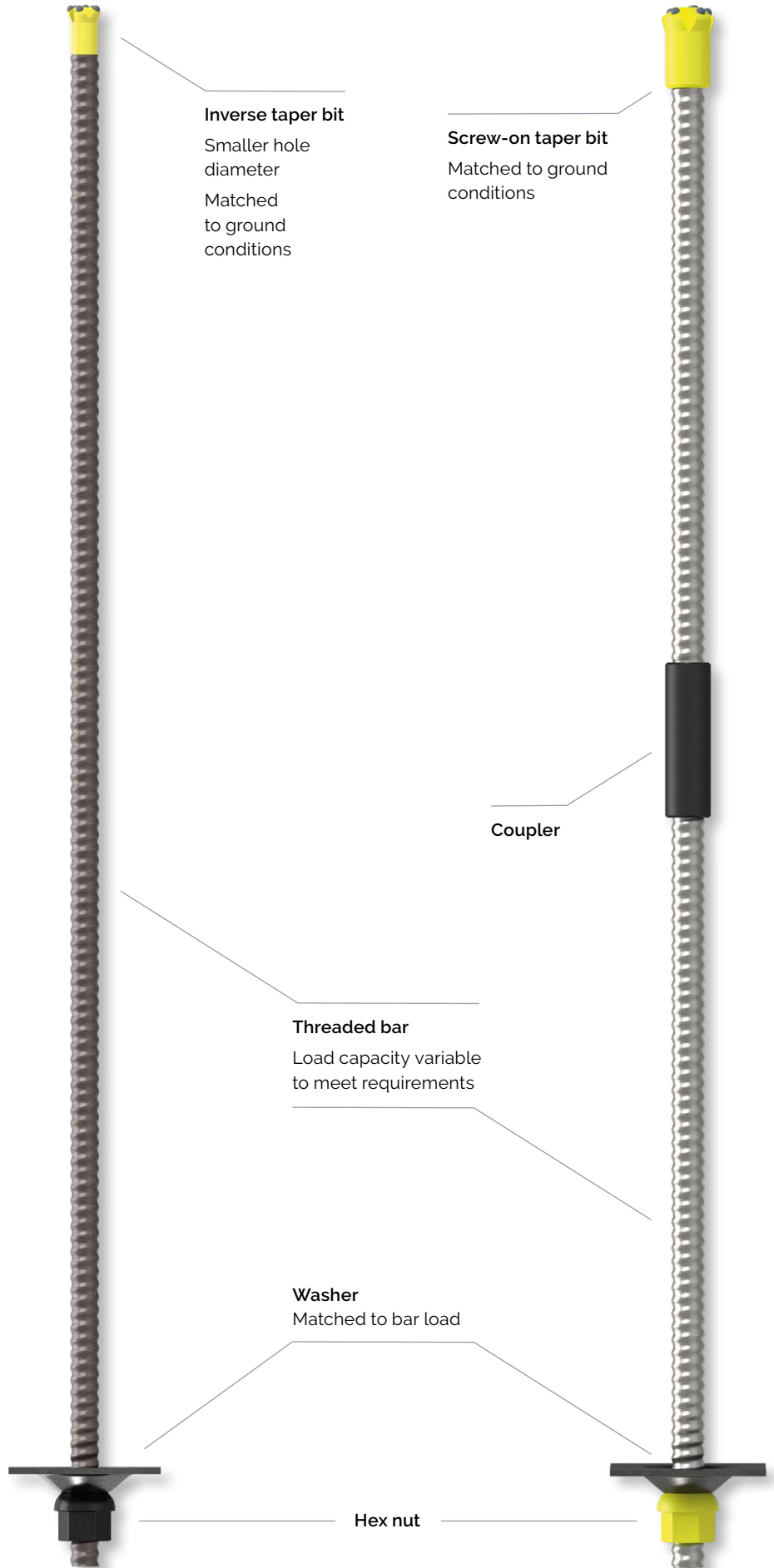






# Hollow Bar and Self-Drilling Anchors

Self-Drilling Anchors (SDAs) are hollow rockbolts which serve as both the drill string during drilling of a support hole and as the support tendon once grouted into place. A single use drill bit, selected to suit the ground condition, is fitted to the leading end of the SDA with a plate and nut fitted on the trailing end. Couplers can be used to combine SDA sections for longer support depth.



# Part numbers

## Hollow Bar

Bar type	Yield load (kN)	Ultimate load (kN)	Length (m)	Weight (kg)	Part number
R25	150	200	2.4	5.6	9899 8800 73
			3.0	7.1	9899 8800 74
R28	200	260	2.4	7.0	9899 8800 41
			3.0	8.7	9899 8800 42
R32	160	210	2.4	6.2	9899 8800 43
			3.0	7.8	9899 8800 44
	230	280	2.4	7.1	9899 8800 45
			3.0	8.9	9899 8800 46
	280	360	2.4	9.6	9899 8800 47
			3.0	12.0	9899 8800 48
R38	400	500	2.4	13.2	9899 8800 49
			3.0	16.5	9899 8800 50
	450	550	2.4	14.2	9899 8800 51
			3.0	17.7	9899 8800 52
T40	430	530	2.4	14.9	9899 8800 53
			3.0	18.6	9899 8800 54
	525	660	2.4	17.3	9899 8800 55
			3.0	21.6	9899 8800 56
R51	450	580	2.4	16.2	9899 8800 57
			3.0	20.3	9899 8800 58
	630	800	2.4	21.6	9899 8800 59
			3.0	27.0	9899 8800 60
	740	925	2.4	22.2	9899 8800 61
			3.0	27.8	9899 8800 62



# Part numbers

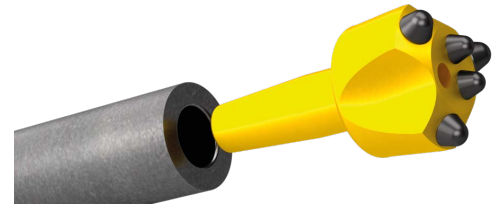
## SDA nuts

Bar type	Hex nut			Domed nut		
	Width A/F (mm)	Unit weight (kg)	Part number	Width A/F (mm)	Unit weight (kg)	Part number
R25	41	0.20	9899 8800 76	41	0.31	9899 8800 75
R28	46	0.42	9899 8800 68	46	0.45	9899 8800 63
R32	46	0.37	9899 8800 69	46	0.38	9899 8800 64
R38	50	TBA	9899 8800 70	52	0.61	9899 8800 65
R40	65	TBA	9899 8800 71	65	TBA	9899 8800 66
R51	75	TBA	9899 8800 72	75	TBA	9899 8800 67



## Inverse taper bits

Bit diameter (mm)	Suits internal bolt diameter	Unit Weight (kg)	Part number
Ø35	Ø15	0.19	9899 8558 39



## SDA bits

SDA bit type	Suitable applications
ESS-F	Weathered rock, stone walls, rubble
ES-F	Gravel, soft rock
EXX	Softer sedimentary rocks
EX	Sand, fills, gravel



Bar type	Ø (mm)	Button bits			Cross bits		
		Unit weight (kg)	ESS-F Part number	ES-F Part number	Unit weight (kg)	EXX Part number	EX Part number
R25	42	0.30	9899 8800 77	9899 8800 78	-	-	-
R28	38	0.28	9899 8800 01	9899 8800 14	0.25	9899 8800 08	9899 8800 20
	42	0.32	9899 8800 79	TBA	-	-	-
R32	42	0.32	9899 8800 02	9899 8800 15	0.25	9899 8800 09	9899 8800 21
	51	TBA	9899 8800 03	9899 8800 16	-	9899 8800 10	9899 8800 22
R38	76	1.37	9899 8800 04	9899 8800 17	1.28	9899 8800 11	9899 8800 23
T40	64	TBA	9899 8800 05	-	-	-	-
	76	TBA	9899 8800 06	9899 8800 18	TBA	9899 8800 12	9899 8800 24
R51	76	TBA	9899 8800 07	9899 8800 19	TBA	9899 8800 13	-

## SDA faceplates

Description	Geometry (mm)	Hole diameter (mm)	Thickness (mm)	Unit weight (kg)	Corrosion protection	Part number
Domed square plate	150 x 150	40	6.0	11	Black	9899 8560 16
					Hot Dip Galvanised	9899 8560 45
			8.0	14	Black	9899 8560 46
					Hot Dip Galvanised	9899 8560 47
	200 x 200	40	6.0	2.1	Black	9899 8565 37
					Hot Dip Galvanised	9899 8565 38
Zinc Diffused					9899 8560 02	



## SDA couplers

Thread	Outer diameter (mm)	Length (mm)	With seal		Without seal	
			Unit weight (kg)	Part number	Unit weight (kg)	Part number
R25	36	150	0.66	9899 8800 80	0.68	9899 8800 81
R28	36	150	0.57	9899 8800 25	0.55	9899 8800 33
R32	42	145	0.79	9899 8800 26	0.77	9899 8800 34
	42	160	0.86	9899 8800 27	0.84	9899 8800 35
	42	190	1.00	9899 8800 28	1.00	9899 8800 36
R38	51	220	1.67	9899 8800 29	1.68	9899 8800 37
T40	57	140	1.37	9899 8800 30	1.39	9899 8800 38
R51	63	200	1.85	9899 8800 31	1.84	9899 8800 39
	63	220	2.00	9899 8800 32	2.03	9899 8800 40

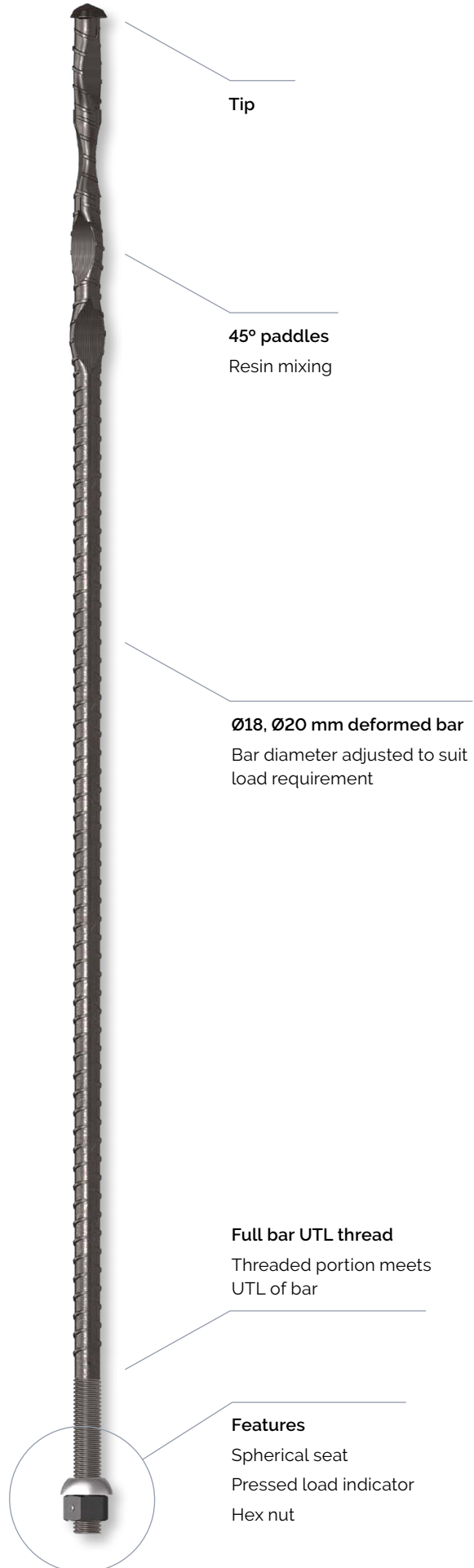


# HelixBolt

The HelixBolt is a resin anchored rockbolt with improved resin mixing and support capacity for resin bolting applications.

Helix style bolts can be supplied with a unique head configuration designed for improved shredding of resin capsules, better centralizing of the installed bolt and improved end anchoring.

The HelixBolt can be supplied in  $\text{\O}18$  mm or  $\text{\O}20$  mm bar depending on requirements.





# Technical information

## Technical information

Bolt diameter (mm)		Ø18	Ø20
Hole range (mm)	45° tip	Ø32 – Ø38	
	Tri-lobe tip	Ø34 – Ø38	
Typical yield load (kN)		130	160
Typical static load capacity (kN)		170	210

## Optional features

### Tri-lobe tip:

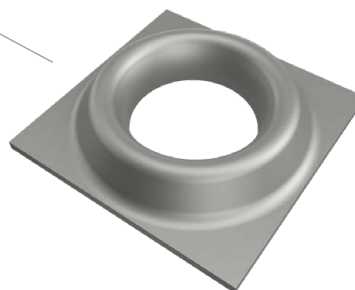
A tri-lobe tip aids in the centralisation of the HelixBolt in the borehole, as well as the piercing and shredding the resin cartridge to mitigate gloving.



### Load indicator:

A Load Indicator confirms loading onto the Faceplate.

A pressed load indicator collapses during tensioning of the installed bolt to indicate a sufficient pre-load has been applied to the nut and plate.



# Part numbers

## HelixBolt V Ø18 with hex nut, spherical seat, shear pin

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	3.3	200	9899 8703 38	9899 8703 39
1.8	3.9	200	9899 8703 40	9899 8703 41
2.1	4.6	200	9899 8703 42	9899 8703 43
2.2	4.8	200	9899 8703 44	9899 8703 45
2.4	5.2	200	9899 8703 46	9899 8703 47
2.7	5.8	200	9899 8703 48	9899 8703 49
3.0	6.5	200	9899 8703 50	9899 8703 51



## HelixBolt V Ø18 with hex nut, spherical seat, shear pin, tri-lobe tip

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	3.3	200	9899 8702 54	9899 8702 55
1.8	3.9	200	9899 8702 56	9899 8702 57
2.1	4.6	200	9899 8702 58	9899 8702 59
2.2	4.8	200	9899 8702 60	9899 8702 61
2.4	5.2	200	9899 8702 62	9899 8702 63
2.7	5.8	200	9899 8702 64	9899 8702 65
3.0	6.5	200	9899 8702 66	9899 8702 67



### HelixBolt V Ø20 with hex nut, spherical seat, shear pin

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	3.9	200	9899 8702 96	9899 8702 97
1.8	4.6	200	9899 8702 98	9899 8702 99
2.1	5.4	200	9899 8703 00	9899 8703 01
2.2	5.6	200	9899 8703 02	9899 8703 03
2.4	6.1	200	9899 8703 04	9899 8703 05
2.7	6.9	200	9899 8703 06	9899 8703 07
3.0	7.6	200	9899 8703 08	9899 8703 09



### HelixBolt V Ø20 with hex nut, spherical seat, shear pin, tri-lobe tip

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	3.9	200	9899 8702 01	9899 8702 19
1.8	4.6	200	9899 8702 02	9899 8702 20
2.1	5.4	200	9899 8702 03	9899 8702 21
2.2	5.6	200	9899 8702 04	9899 8702 22
2.4	6.1	200	9899 8702 05	9899 8702 23
2.7	6.9	200	9899 8702 06	9899 8702 24
3.0	7.6	200	9899 8702 07	9899 8702 25



# Part numbers

## HelixBolt V Ø20 with domed square nut

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	3.9	200	9899 8703 80	9899 8703 81
1.8	4.6	200	9899 8703 82	9899 8703 83
2.1	5.4	200	9899 8703 84	9899 8703 85
2.2	5.6	200	9899 8703 86	9899 8703 87
2.4	6.1	200	9899 8703 88	9899 8703 89
2.7	6.0	200	9899 8703 90	9899 8703 91
3.0	7.6	200	9899 8703 92	9899 8703 93



## HelixBolt V Ø20 with domed square nut, tri-lobe tip

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Galvanised
1.5	4.0	200	9899 8703 94	9899 8703 95
1.8	4.6	200	9899 8703 96	9899 8703 97
2.1	5.4	200	9899 8703 98	9899 8703 99
2.2	5.6	200	9899 8704 00	9899 8704 01
2.4	6.1	200	9899 8704 02	9899 8704 03
2.7	6.9	200	9899 8704 04	9899 8704 05
3.0	7.6	200	9899 8704 06	9899 8704 07



# HelixBolt faceplates

## Faceplates

Description	HelixBolt Ribbed Faceplate					
Applicable bolt diameters (mm)	Ø18, Ø20					
Typical load capacity (kN)	70		135		195	
Geometry (mm)	125 x 125					
Hole diameter (mm)	Ø30					
Thickness (mm)	3		4		5	
Unit weight (kg)	0.32	0.33	0.4	0.41	0.54	0.55
Corrosion protection	Black	Galvanised	Black	Galvanised	Black	Galvanised
Part number	9899 8710 02	9899 8710 03	9899 8710 04	9899 8710 05	9899 8710 00	9899 8710 06



# HelixBolt accessories

## HelixBolt spinning adaptors

Description	Major diameter (mm)	Connection	Socket type	Tool length (m)	Unit weight (kg)	Part number
Installation Tool Hex25 x Hex 32 A/F	55	Hex 25	Hex 32 A/F	0.5		9899 8565 58
				0.6	6.5	9899 8565 28
Installation Tool T38 x Hex 32 A/F	55	T38 Female	Hex 32 A/F	0.8	8.5	9899 8655 01
				0.9	10.5	9899 8775 01
Installation Tool R38 x Hex 32 A/F	55	R38 Female	Hex 32 A/F	0.6	6.5	9899 8565 63
				0.9	10.5	9899 8565 32

# Inflatable rockbolts

Inflatable rockbolts are available in a variety of configurations to suit different support requirements and mining methods.

## Inflatable rockbolts

	Swelllex				ERB		Hydrabolt			X-Pandabolt	
	Pm12	Mn12	Pm16	Pm24	ERB100	ERB120	2910	2710	2708	2710	2708
Minimum breaking load (kN)	120	120	160	240	100	120	100	100	80	100	80
Bolt diameter (mm)	28	28	36.5	37	27.5	28	29	27	27	27	27
Material thickness (mm)	2	2	2	3	1.85	2	2.0	2.2	1.8	2.2	1.8
Upper bushing diameter (mm)	28	28	38	38	28	28	29.8	28.5	28.5	28.5	28.5
Inflation side bushing diameter (mm)	30/36	30/37	41/50	41/50	30/37	30/37	33/46	32/46	32/46	32/46	32/46
Hole diameter (mm)	32 - 39	32 - 39	43 - 52	43 - 52	32 - 39	33 - 39	34 - 40	32 - 36	32 - 36	32 - 36	32 - 36
Typical elongation (%)	>10	>20	>10	>10	10	10	15 - 20	15 - 20	15 - 20	15 - 20	15 - 20
Available lengths (m) (increments of 0.3 m)	1.5 - 3.0	1.5 - 3.0	2.4 - 4.0	2.4 - 4.0	1.5 - 3.0	1.5 - 3.0	1.2 - 3.0	0.9 - 3.0	0.9 - 1.8	0.9 - 3.0	0.9 - 1.8
Inflation pressure (MPa)	30	30	30	30	30	30	25 - 30	25 - 30	25 - 30	25 - 30	25 - 30
Pump type	Swelllex PSP300, H1, H2R, HC1-L, E1, EC1-L						High Pressure Airpump, code: 9899 8400 10				
Typical bond length (mm)							300	300	300	900	900
Length identification	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Installation pressure indicator	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes

## Thermal zinc diffusion

Hydrabolts and X-Pandabolts can be supplied with thermal zinc diffusion for improved corrosion protection.

# Swellex

The Swellex rockbolt is a sealed steel tube folded on itself which upon installation is expanded with high water pressure offering strong performance and interaction with rock mass, assurance of perfect installation for every bolt and quick installation. The extensive application range, speed and quality of installation have solved support problems and increased profitability for contractors and mine operators all over the world.

## Technical information

### Swellex load capacity













	Minimum breaking load, expanded profile (kN)	Typical elongation (%)**	Profile diameter (mm)	Material thickness (mm)	Original tube diameter (mm)	Injection bushing diameter (mm)	Bushing head (mm)	Bore hole diameter (mm)	Expansion pressure (bar)
Pm12	120	15	275	2	41	28	30/37	32 - 39	300
Pm16	160	15	36	2	54	38	41/48	43 - 52	240
Pm24	240	15	36	3	54	38	41/48	43 - 52	300
Pm24C	240	15	36	3	54	38	41/53	48 - 52	300
Pm24H*	200	15	36	3	54	38		43 - 52	300
Mn12	120	20	275	2	41	28	30/37	32 - 39	300
Mn16	160	20	36	2	54	38	41/48	43 - 52	240
Mn24	230	20	36	3	54	38	41/50	43 - 52	300

Bolts also available in PlastiCoated.

\* If borehole diameter <51 collaring of 51 mm is required to allow insertion of bushing head in rock mass.

\*\* Elongation A5 as per ISO 6892-1:2009 (Ed. 1.00).

### "ASTM" color/length chart

Color plug	Bolt length	Color plug	Bolt length
 Red	15 m / 5 ft	 Dark green	3.6 - 4.0 m / 12 - 13 ft
 Dark blue	18 m / 6 ft	 Brown	4.5 m / 14 - 15 ft
 Orange	2.1 m / 7 ft	 Uncolored	5 m / 16 - 17 ft
 White	2.4 m / 8 ft	 Light blue	5.5 m / 18 - 19 ft
 Fluorescent green	2.7 m / 9 ft	 Black	6 m / 20 - 21 ft
 Safety yellow	3.0 - 3.3 m / 10 ft - 11 ft	 Pink	7 m / 22 - 23 ft



# Part numbers

## Swellex Pm12 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
1.5	3.3	9899 7027 09
1.8	3.6	9899 7032 44
2.1	4.2	9899 7080 50
2.4	4.9	9899 7032 45
2.7	5.5	9899 7080 51
3.0	6.1	9899 7032 46
Plastic coated		
1.5	3.3	9899 7084 80
1.8	3.8	9899 7087 02
2.1	4.4	9899 7087 03
2.4	5.0	9899 7084 69
2.7	6.2	9899 7087 04
3.0	6.6	9899 7087 05

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



## Swellex Pm16 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
2.4	6.6	9899 7083 05
2.7	7.4	9899 7083 06
3.0	8.2	9899 7083 07
3.3	8.9	9899 7083 08
3.6	9.7	9899 7083 09
4.0	10.7	9899 7083 10
Plastic coated		
2.4	6.6	9899 7083 19
2.7	7.4	9899 7083 20
3.6	10.7	9899 7083 23

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.





## Swellex Pm24 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
2.4	9.5	9899 7032 50
2.7	10.6	9899 7080 84
3.0	11.8	9899 7080 85
3.3	12.9	9899 7080 86
3.6	14.0	9899 7080 87
3.9	15.2	9899 7080 88
4.0	15.6	9899 7080 89
<b>Plastic coated</b>		
2.4	9.5	9899 7080 76
3.0	11.8	9899 7082 06
3.6	14.0	9899 7082 08

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



# Part numbers

## Swellex Pm24C connectable rockbolts

Description	Length (m)		Weight (kg)	Part number
	Assembled	Overall		
Blind segment	1.62	1.62	6.3	9899 7080 00
	1.92	1.92	7.8	9899 7080 01
	2.22	2.22	8.5	9899 7080 02
	2.52	2.52	9.7	9899 7080 03
	3.12	3.12	11.9	9899 7080 04
	4.12	4.12	15.9	9899 7080 05
Middle segment	1.62	1.72	6.6	9899 7013 91
	1.92	2.02	7.9	9899 7013 85
	2.22	2.32	8.8	9899 7013 97
	2.52	2.62	10.0	9899 7013 31
	3.12	3.22	12.2	9899 7013 33
	4.12	4.22	16.1	9899 7013 94
Injection segment	1.52	1.62	6.4	9899 7013 90
	1.82	1.92	7.4	9899 7013 87
	2.12	2.22	8.5	9899 7013 96
	2.42	2.52	9.7	9899 7013 32
	3.02	3.12	12.0	9899 7013 34
	4.02	4.12	15.9	9899 7013 93
<b>Swellex plug-on retainer</b>				
<b>Optional blind segment retainer</b>			0.05	9899 7080 11

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



**Swellex Pm24C connectable rockbolts – plastic coated**

Description	Length (m)		Weight (kg)	Part number
	Assembled	Overall		
Blind segment	1.62	1.62	6.3	9899 7080 06
	1.92	1.92	7.8	9899 7080 07
	2.22	2.22	8.5	9899 7080 08
	2.52	2.52	9.7	9899 7080 09
	3.12	3.12	12.0	9899 7080 10
Middle segment	1.62	1.72	6.6	9899 7014 10
	1.92	2.02	7.9	9899 7014 04
	2.22	2.32	8.8	9899 7014 14
	2.52	2.62	10.0	9899 7014 01
	3.12	3.22	12.2	9899 7014 06
Injection segment	1.52	1.62	6.4	9899 7014 09
	1.82	1.92	7.4	9899 7014 02
	2.12	2.22	8.5	9899 7014 13
	2.42	2.52	9.7	9899 7013 99
	3.02	3.12	12.0	9899 7014 07
<b>Swellex plug-on retainer</b>				
Optional blind segment retainer			0.05	9899 7080 11

## Part numbers

### Swellex Pm24H hanger rockbolts

Description	Length (m)	Weight (kg)	Part number
M36 thread	1.5	7.7	9899 7006 67
	1.8	8.0	9899 7026 43
	2.1	9.9	9899 7006 68
	2.4	11.1	9899 7006 69
	2.7	12.3	9899 7017 95
	3.0	13.4	9899 7006 17
	4.0	17.2	9899 7006 70
	4.5	19.1	9899 7017 96
	5.0	21.0	9899 7017 84
<b>Plastic coated</b>			
M36 thread	1.5	7.7	On request
	2.1	9.9	On request
	2.4	11.1	9899 7103 33
	3.0	13.4	On request



### Swellex Pm 24H accessories

Description	Weight (kg)	Part number
M36 eyebolt	2.8	9899 7022 83
<b>Swellex Pm24H expansion adapter</b>		
Expansion adapter M36 for 24 series chuck	0.3	9899 7006 19
Expansion adapter M36 for 12 series chuck	0.3	9899 7027 90

### Swellex Mn12 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
1.2	2.5	9899 7080 37
1.5	3.1	9899 7080 38
1.8	3.6	9899 7080 39
2.1	4.3	9899 7080 40
2.4	4.9	9899 7080 41
2.7	5.5	9899 7080 42
3.0	6.0	9899 7080 43
<b>Plastic coated</b>		
1.2	2.5	9899 7080 24
1.5	3.1	9899 7080 25
1.8	3.6	9899 7080 26
2.1	4.3	9899 7080 27
2.4	4.9	9899 7080 28
2.7	5.5	9899 7080 29
3.0	6.0	9899 7080 30

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



### Swellex Mn16 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
2.4	7.4	9899 7087 30
2.7	8.2	9899 7087 31
3.0	9.0	9899 7087 32
3.3	9.7	9899 7087 33
3.6	11.2	9899 7087 34
4.0	11.6	9899 7087 35

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



## Part numbers

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### Swellex Mn24 rockbolts

Length (m)	Weight (kg)	Part number incl. color plug
2.4	9.4	9899 7083 53
2.7	10.5	9899 7083 54
3.0	11.7	9899 7083 55
3.3	12.8	9899 7083 56
3.6	13.9	9899 7083 57
3.9	15.2	9899 7083 58
4.0	15.4	9899 7083 59
<b>Plastic coated</b>		
2.4	9.4	9899 7083 71
3.0	11.7	9899 7083 73
3.3	12.8	9899 7083 74
3.6	13.9	9899 7083 75

Custom lengths available upon request. Cone installed bolts available upon request.  
Refer to color chart 7.



# Swellex faceplates and washers

## Swellex faceplates

Name	Description	ASTM grade	Load capacity (kN) Sp/Pm/Mn	Geometry (mm x mm)	Hole size (Dia.)	Weight (kg)	Part number
P12	Performance plate for 12 range bolts, domed	3	100	152 x 152	31.0	1.02	9899 8560 42
M12	MID performance plate for 12 range bolts, domed	2	80	152 x 152	31.0	1.02	9899 8560 43
F12	Flat plate for 12 range bolts	N/A	70/90	127 x 127	31.0	0.71	9899 7006 31
V12	Value plate for 12 range bolts, domed	N/A	50	150 x 150	31.0	0.80	9899 7014 18
P16/24	Performance plate for 16 and 24 range bolt, domed	3	170/190	152 x 152	40.6	1.02	9899 8560 44
P24L	Performance plate for 16 and 24 range bolts, domed with lance	3	170/190	152 x 152	40.6	1.02	9899 7030 35
P24C	Performance plate for Pm24 connectable bolt, domed	3	180	152 x 152	44.5	1.02	9899 7006 35
V16/24	Value plate for 16 and 24 range bolts	N/A	50	150 x 150	41.5	0.82	9899 7014 21
V24C	Value plate for connectables	N/A	50	150 x 150	41.5	0.82	9899 7021 10
RE12 4' x 4'	Rabbit ears plate for chain 1/3" or 3/8" chain, 4' square x 4' square L shaped	N/A	*capacity safety factor 6 Hanging capacity 5.4	102 x 102	31.0	0.25	9899 7030 34
RE12 5' x 5'	Rabbit ears plate for chain 1/3" or 3/8" chain, 5' square x 5' square L shaped	2	*capacity safety factor 6 Hanging capacity 5.4	127 x 127	31.0	1.70	9899 7033 20
RE24 5' x 5'	Rabbit ears plate for chain 1/3" or 3/8" chain, 5' square x 5' square L shaped	N/A	*capacity safety factor 6 Hanging capacity 5.4	127 x 127	40.6	1.70	9899 7087 00

## Swellex washers

Name	Description	Geometry (mm)	Indicative load capacity (kN)	Part number
MWR12	Mesh washer round for 12 range bolts	100 Round	12	3125 5400 00
MWS12	Mesh washer square for 12 range bolts	125 x 125	12	3125 5492 00
MWS24	Mesh washer square for 16 and 24 range bolts	125 x 125	12	3125 5655 00



# Hydrabolt

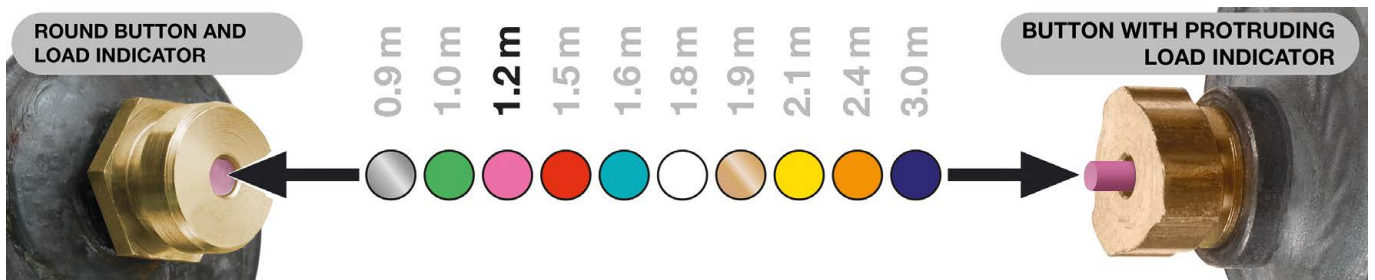
The Hydrabolt is a hydraulically expanded rockbolt with superior bond strength for tensile loading applications. The hollow, tubular Hydrabolt is injected with high pressure water upon installation and then expands to adapt to the shape of a pre-drilled support hole. The Hydrabolt incorporates a check valve to prevent the fluid from being released once the inflating nozzle is removed. This system provides a better bond as the inflated tube adapts to the shape, size and irregularities of the hole and distributes the clamping force evenly throughout the length of the hole. As the installed Hydrabolt is sealed, the internal corrosion is self-inhibiting.

Hydrabolts are fitted with an integral load indicator that confirms it has been correctly installed by popping forward once the Hydrabolt has been adequately pressurised; secondly the color of the load indicator identifies which length of Hydrabolt has been installed.



Hydrabolt with round button

Hydrabolt with tri-lobe button





## Part numbers

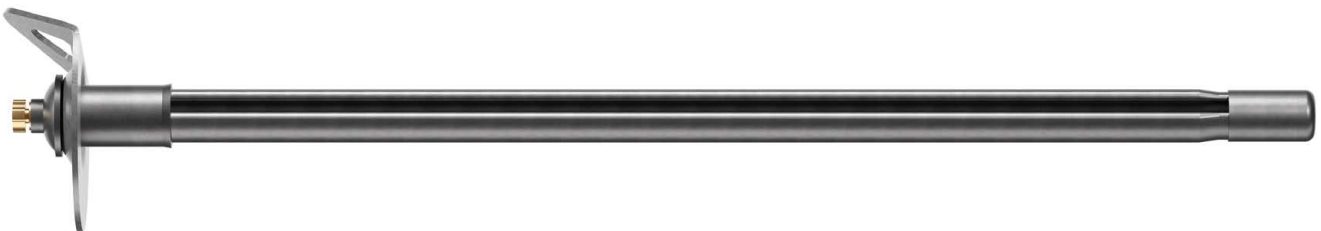
### Hydrabolt 2708 c/w round button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.1	250	9899 8100 33	On request
1.0	2.3	250	9899 8100 40	On request
1.2	2.7	250	9899 8100 42	On request
1.5	3.3	250	9899 8100 48	On request
1.8	3.9	250	9899 8100 54	On request



### Hydrabolt 2708 c/w tri-lobe button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.1	250	9899 8101 25	On request
1.0	2.3	250	9899 8100 41	On request
1.2	2.7	250	9899 8100 45	9899 8100 47
1.5	3.3	250	9899 8100 51	On request
1.8	3.9	250	9899 8100 57	9899 8100 58



# Part numbers

## Hydrabolt 2710 c/w round button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.5	250	On request	On request
1.2	3.0	250	On request	On request
1.5	3.6	250	On request	On request
1.8	4.3	250	On request	On request
2.1	5.0	250	On request	9899 8100 30
2.4	5.6	250	On request	On request
2.7	6.3	250	On request	On request
3.0	6.9	250	On request	On request



## Hydrabolt 2710 c/w tri-lobe button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.5	250	On request	On request
1.2	3	250	On request	On request
1.5	3.6	250	On request	On request
1.8	4.3	250	On request	On request
2.1	5	250	On request	On request
2.4	5.6	250	9899 8100 31	On request
2.7	6.3	250	On request	On request
3.0	6.9	250	On request	On request



### Hydrabolt 2910 c/w round button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	2.9	250	9899 8100 97	On request
1.5	3.5	250	9899 8100 01	On request
1.8	4.1	250	9899 8100 99	On request
2.1	4.7	250	9899 8101 00	9899 8101 03
2.4	5.4	250	On request	On request
2.7	6	250	On request	On request
3.0	6.6	250	9899 8100 16	On request



### Hydrabolt 2910 c/w tri-lobe button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	2.9	250	On request	On request
1.5	3.5	250	On request	On request
1.8	4.1	250	On request	On request
2.1	4.7	250	On request	On request
2.4	5.4	250	On request	On request
2.7	6	250	On request	On request
3.0	6.6	250	On request	On request



# Part numbers

## Hydrabolt 2910 c/w round button, Ø150 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	3.1	250	9899 8100 98	On request
1.5	3.2	250	9899 8100 04	On request
1.8	3.8	250	9899 8100 06	9899 8100 07
2.1	4.4	250	9899 8100 09	9899 8100 10
2.4	5	250	9899 8100 13	9899 8100 14
2.7	5.7	250	On request	On request
3.0	6.3	250	9899 8100 19	On request



## Hydrabolt 2910 c/w tri-lobe button, Ø150 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	3.1	250	On request	On request
1.5	3.2	250	On request	On request
1.8	3.8	250	On request	On request
2.1	4.4	250	On request	On request
2.4	5	250	On request	On request
2.7	5.7	250	On request	On request
3.0	6.3	250	On request	On request



# X-Pandabolt

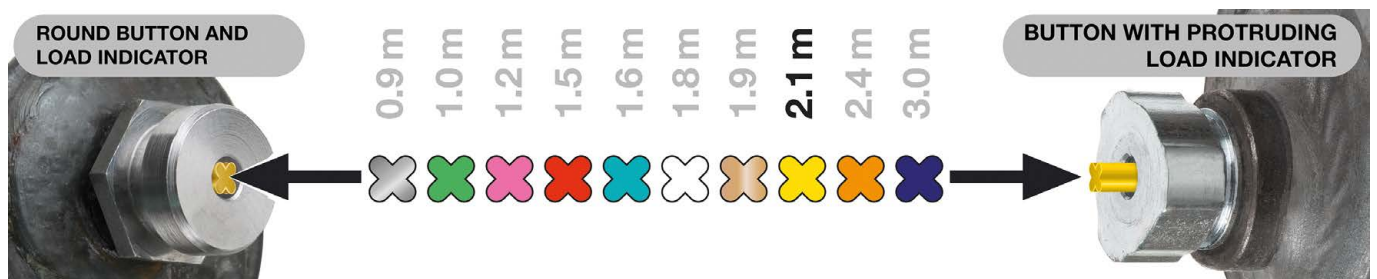
The X-Pandabolt is an hydraulically expanded rockbolt that releases the internal pressure once installation has been completed. With no internal pressure, the body of the X-Pandabolt is able to withstand greater deformation than that of a Hydrabolt and therefore withstands greater lateral movement of the rock in which the X-Pandabolt is installed.

X-Pandabolts are fitted with an integral load indicator that confirms X-Pandabolt has been correctly installed by popping forward once the X-Pandabolt has been adequately pressurised; secondly the color of the load indicator identifies which length of X-Pandabolt has been installed.



X-Pandabolt with round button

X-Pandabolt with tri-lobe button



## Part numbers

### X-Pandabolt 2710 c/w round button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.5	250	On request	On request
1.2	3.0	250	On request	On request
1.5	3.6	250	On request	On request
1.8	4.3	250	On request	On request
2.1	5.0	250	On request	On request
2.4	5.6	250	On request	On request
2.7	6.3	250	On request	On request
3.0	6.9	250	On request	On request



### X-Pandabolt 2710 c/w tri-lobe button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
0.9	2.2	250	On request	On request
1.2	2.7	250	9899 8100 81	9899 8101 06
1.5	3.3	250	9899 8100 85	9899 8100 87
1.8	4.0	250	9899 8100 89	9899 8100 91
2.1	4.7	250	9899 8100 92	9899 8100 93
2.4	5.3	250	On request	9899 8101 05
2.7	6.0	250	On request	On request
3.0	6.6	250	On request	On request



### X-Pandabolt 2910 c/w round button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	2.9	250	On request	On request
1.5	3.5	250	On request	On request
1.8	4.1	250	On request	On request
2.1	4.7	250	On request	On request
2.4	5.4	250	On request	On request
2.7	6.0	250	On request	On request
3.0	6.6	250	On request	On request



### X-Pandabolt 2910 c/w tri-lobe button, Ø120 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	2.9	250	On request	On request
1.5	3.5	250	On request	On request
1.8	4.1	250	On request	On request
2.1	4.7	250	On request	On request
2.4	5.4	250	On request	On request
2.7	6.0	250	On request	On request
3.0	6.6	250	On request	On request



## Part numbers

### X-Pandabolt 2910 c/w round button, Ø150 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	3.1	250	On request	On request
1.5	3.2	250	On request	On request
1.8	3.8	250	On request	On request
2.1	4.4	250	On request	On request
2.4	5.0	250	On request	On request
2.7	5.7	250	On request	On request
3.0	6.3	250	On request	On request



### X-Pandabolt 2910 c/w tri-lobe button, Ø150 mm plate

Bolt length (m)	Weight (kg)	Units per bundle	Part number	
			Standard	Zinc diffusion
1.2	3.1	250	On request	On request
1.5	3.2	250	On request	On request
1.8	3.8	250	On request	On request
2.1	4.4	250	On request	On request
2.4	5.0	250	On request	On request
2.7	5.7	250	On request	On request
3.0	6.3	250	On request	On request

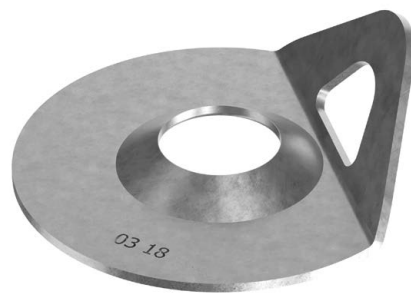




# Hydrabolt and X-Pandabolt faceplates

## Hydrabolt and X-Pandabolt faceplates

Description	Round		Square ribbed	
Typical load capacity (kN)				
Geometry (mm)	Ø120		150 x 150	
Hole diameter (mm)	Ø34.5		Ø34.5	
Thickness (mm)	3.5		3.5	
Unit weight (kg)	0.25		0.54	
Corrosion protection	Black	Zinc diffused	Black	Zinc diffused
Part number	9899 8110 14	On request	9899 8110 12	On request



# Pumpable resin

## Potentia Thixo

Developed with



Potentia Thixo is a two-component pumpable resin that simplifies the installation of rockbolts and cable bolts whilst improving installation quality. Potentia Thixo is dispensed by a pumping system which automatically mixes and injects, in the correct ratio, into the support hole. The thixotropic resin begins to gel immediately upon mixing and sets, forming a chemical anchor with excellent mechanical properties. When injected through pumpable bolts, the resin fills the annular space between the bolt and the bore hole with full column bond independent of the hole profile.

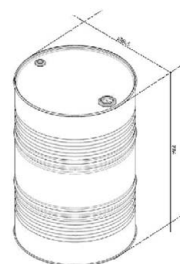
For support using cable bolts or solid bars, Potentia Thixo can be pumped into the borehole through an injection pipe before the tendon is pushed into the hole through the resin. Potentia Thixo is available in a range of different setting times to suit different rock temperatures and varying lengths of rockbolts and cables. Once mixed, Potentia Thixo remains unaffected by water and will adhere to damp surfaces.

### Technical information

Component data	Component A	Component B
Density at 25°C (g/cm <sup>3</sup> )	1.4	1.2
Viscosity at 25°C (mPa.s)	230	130
Mixing ratio (in volume)	1 : 1	
Shelf life at 20°C (months)	12	12

Reaction data	Slow	Normal	Fast
Gel time	Immediate	Immediate	Immediate
Tack free time (s)	600	150	35

Packaging details	Containers	Containers	Drums	IBC
Volume per container (l)	20	26	200	890
Dimensions (mm)	395 x 235 x 320	395 x 235 x 420	Ø585 x 884	1200 x 1000 x 1160



# Part numbers

## Containers – 20 litre

Description	Volume (l)	Weight (kg)	Part number
Potentia Thixo resin CAN – Part A – 35 s	20	28	9899 8553 11
Potentia Thixo resin CAN – Part A – 60 s	20	28	9899 8808 40
Potentia Thixo resin CAN – Part A – 180 s	20	28	9899 8808 41
Potentia Thixo resin CAN – Part A – 300 s	20	28	9899 8808 42
Potentia Thixo resin CAN – Part A – 600 s	20	28	9899 8808 43
Potentia Thixo resin CAN – Part B	20	23	9899 8553 12

## Resin table – sets

Description	Set volume (l)	Net weight (kg)	Part number
Potentia Thixo resin CAN2419 – SET – 35 s	40	51	9899 8553 10
Potentia Thixo resin CAN2419 – SET – 60 s	40	51	9899 8808 36
Potentia Thixo resin CAN2419 – SET – 180 s	40	51	9899 8808 37
Potentia Thixo resin CAN2419 – SET – 300 s	40	51	9899 8808 38
Potentia Thixo resin CAN2419 – SET – 600 s	40	51	9899 8808 39

## Individual cans – 26 litre

Description	Volume (l)	Weight (kg)	Part number
Potentia Thixo resin CAN – Part A – 35 s	26	36	9899 8553 08
Potentia Thixo resin CAN – Part A – 60 s	26	36	9899 8808 32
Potentia Thixo resin CAN – Part A – 180 s	26	36	9899 8808 33
Potentia Thixo resin CAN – Part A – 300 s	26	36	9899 8808 34
Potentia Thixo resin CAN – Part A – 600 s	26	36	9899 8808 35
Potentia Thixo resin CAN – Part B	26	30	9899 8553 09

## Can sets – 2 x 26 litre

Description	Set volume (l)	Net weight (kg)	Part number
Potentia Thixo resin CAN3528 – SET – 35 s	52	66	9899 8553 07
Potentia Thixo resin CAN3528 – SET – 60 s	52	66	9899 8808 28
Potentia Thixo resin CAN3528 – SET – 180 s	52	66	9899 8808 29
Potentia Thixo resin CAN3528 – SET – 300 s	52	66	9899 8808 30
Potentia Thixo resin CAN3528 – SET – 600 s	52	66	9899 8808 31

# Part numbers

## Individual drums

Description	Set volume (l)	Weight (kg)	Part number
Potentia Thixo resin DRUM – Part A – 35 s	200	280	9899 8553 05
Potentia Thixo resin DRUM – Part A – 60 s	200	280	9899 8808 24
Potentia Thixo resin DRUM – Part A – 180 s	200	280	9899 8808 25
Potentia Thixo resin DRUM – Part A – 300 s	200	280	9899 8808 26
Potentia Thixo resin DRUM – Part A – 600 s	200	280	9899 8808 27
Potentia Thixo resin DRUM – Part B	200	232	9899 8553 06

## Drum sets

Description	Set volume (l)	Net weight (kg)	Part number
Potentia Thixo resin DRUM – SET – 35 s	400	512	98998 553 04
Potentia Thixo resin DRUM – SET – 60 s	400	512	9899 8808 20
Potentia Thixo resin DRUM – SET – 180 s	400	512	9899 8808 21
Potentia Thixo resin DRUM – SET – 300 s	400	512	9899 8808 22
Potentia Thixo resin DRUM – SET – 600 s	400	512	9899 8808 23



Various pumping systems available to suit customer requirements

## Individual IBCs

IBC Connection	Description	IBC volume (l)	Weight (kg)	Part number
2" CAMLOC	Potentia Thixo resin IBC – CAM – Part A – 35 s	892	1250	9899 8553 02
	Potentia Thixo resin IBC – CAM – Part A – 60 s	892	1250	9899 8808 10
	Potentia Thixo resin IBC – CAM – Part A – 180 s	892	1250	9899 8808 11
	Potentia Thixo resin IBC – CAM – Part A – 300 s	892	1250	9899 8808 12
	Potentia Thixo resin IBC – CAM – Part A – 600 s	892	1250	9899 8808 13
	Potentia Thixo resin IBC – CAM – Part B	892	1035	9899 8553 03
2" MALE THREAD	Potentia Thixo resin IBC – THR – Part A – 35 s	892	1250	9899 8808 14
	Potentia Thixo resin IBC – THR – Part A – 60 s	892	1250	9899 8808 15
	Potentia Thixo resin IBC – THR – Part A – 180 s	892	1250	9899 8808 16
	Potentia Thixo resin IBC – THR – Part A – 300 s	892	1250	9899 8808 17
	Potentia Thixo resin IBC – THR – Part A – 600 s	892	1250	9899 8808 18
	Potentia Thixo resin IBC – THR – Part B	892	1035	9899 8808 19

## IBC Sets

IBC Connection	Description	Set volume of (A + B) (l)	Net weight (kg)	Part number
2" CAMLOC	Potentia Thixo resin IBC – CAM – SET – 35 s	1784	2285	9899 8553 01
	Potentia Thixo resin IBC – CAM – SET – 60 s	1784	2285	9899 8808 01
	Potentia Thixo resin IBC – CAM – SET – 180 s	1784	2285	9899 8808 02
	Potentia Thixo resin IBC – CAM – SET – 300 s	1784	2285	9899 8808 03
	Potentia Thixo resin IBC – CAM – SET – 600 s	1784	2285	9899 8808 04
2" MALE THREAD	Potentia Thixo resin IBC – THR – SET – 35 s	1784	2285	9899 8808 05
	Potentia Thixo resin IBC – THR – SET – 60 s	1784	2285	9899 8808 06
	Potentia Thixo resin IBC – THR – SET – 180 s	1784	2285	9899 8808 07
	Potentia Thixo resin IBC – THR – SET – 300 s	1784	2285	9899 8808 08
	Potentia Thixo resin IBC – THR – SET – 600 s	1784	2285	9899 8808 09





# Rockbolt accessories



# Installation tools

## Part numbers

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### Installation tools – Splitsets

Splitset diameter (mm)	Connection	Length (mm)	Unit weight (kg)	Part number
39	7" taper female	223	2.2	9899 8565 19
33	T38 female	190	1.6	9899 8565 18
39	R38 female	190	1.8	9899 8775 42
46	7" Taper female	223	2.2	9899 8565 17
46	R32 female	190	1.8	TBC
46	R38 female	190	1.9	9899 8564 89
46	T38 female	190	1.9	9899 8564 90





# Pre-stressing units

Pre-stressing units are used in conjunction with stand-up support such as props, packs and cribs to provide active support load immediately upon installation.





# Jackpot

Jackpots are single-use hydraulic jacks which are placed on top of timber props and then inflated with high-pressure water through a non-return valve. Under pressures of 120 to 140 bar they expand axially and load the mine props to between 20 tonne and 50 tonne, locking the props into place and applying pressure against the rock mass.

## + Advantages of Jackpots

- Easy to install
- Immediate pre-stressing of the hanging
- Active support reduces blast-out of sticks
- Patented roll-over design increases load capacity
- Blast resistant internal valve



## Technical information

### Technical information

Size	Pole diameter (mm)	Maximum lift (mm)	Inflation pressure (MPa)	Nominal load capacity (kN)
140	100 - 135	40	11 - 13	491
160	120 - 155	50		589
183	140 - 180	50		736
220	180 - 215	50		1030

## Part numbers

### General Information

Size	Unit weight (kg)	Part number
140	11	9899 8200 03
160	13	9899 8200 08
183	15	9899 8200 16
220	2	9899 8200 29





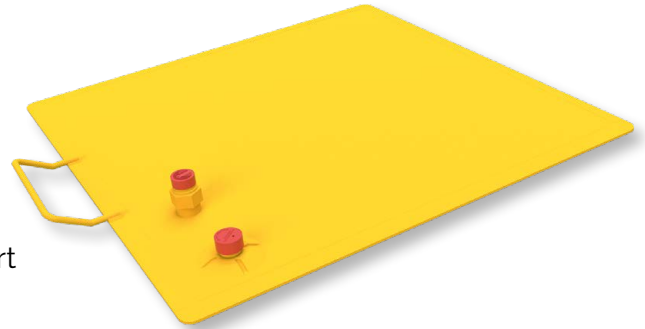


# Jackpack

Jackpacks are pack and crib units which are used to pre-stress timber or cementitious mats, elongate clusters or other packs for supporting the rock mass. Jackpacks are manufactured from two steel sheets cut in various profiles. The sheets are welded together to form an inflatable steel pillow. An integral valve unit allows the filler nozzle to be connected for installation and maintains the internal pressure of the unit. A pressure relief valve can also be included which allows for controlled pressure release after installation. This allows the Jackpack to 'deflate' in a controlled manner until the load is supported purely by the support unit which the Jackpack pre-stressed on installation.

## + Advantages of Jackpacks

- Easy to install
- Immediate pre-stressing of the hanging
- Active support reduces blast-out of pack support



## Technical information

### Technical information

Type	Size	Inflation height (mm)	Inflation pressure (MPa)	Typical pre-load (kN)*
JPP-500/12R TL	500 x 500	100	11 - 13	442
JPP-550/12R TL	550 x 550			589
JPP-650/12R TL	650 x 650			925
JPP-700X300/12R TL	700 x 300			330
JPP-800X300/12R TL	800 x 300			414
JPP-1000/10RC	1000 x 1000			2540
JPP-1040X462/1R	1040 x 462			1087
JPP-36*U10	1225 x 1225			3940

\* 3.5 MPa inflation @ 50 mm lift

## Part numbers

### General information

Type	Unit weight (kg)	Part number
JPP-500/12R TL	4.9	9899 8500 08
JPP-550/12R TL	5.9	9899 8500 10
JPP-650/12R TL	8.1	9899 8500 11
JPP-700X300/12R TL	4.1	9899 8500 13
JPP-800X300/12R TL	4.7	9899 8500 15
JPP-1000/10RC	15.9	9899 8500 01
JPP-1040X462/1R	7.7	9899 8500 02
JPP-36*U10	16.1	9899 8500 07

# Installation pumps

The **Handpump** is designed for use in areas where compressed air is not available and is capable of delivering pressures up to 15 MPa. An adjustable relief valve allows for the Handpump to be set to deliver the desired output pressure. The Handpump can be supplied with or without a pressure gauge fitted. The Handpump is supplied with a 4 m hose and nozzle for connecting to Jackpots and Jackpacks.

The **Low and High Pressure Airpumps** are designed to install mine support where compressed air is available. The Airpump is connected to a water supply hose and to a compressed air supply hose. An internal diaphragm is driven by the compressed air to pressurize supplied water to pressures of up to 30 MPa.

The Airpump is controlled by operating the trigger on the Safety Pistol connected to the delivery hose. By squeezing the trigger, the pump is activated and the pressurised water is delivered to the nozzle. Airpumps are supplied with a 14 m hose set including safety pistol and nozzle to connect to Jackpots, Jackpacks, Hydrabolts and X-Pandabolts.

## Airpumps and Handpump

Description		Low Pressure Airpump		High Pressure Airpump		Handpump	
Compatible with		Round Button	Self-Auditing	Round Button	Self-Auditing	Round Button	Self-Auditing
Part number		9899 8400 02	9899 8400 05	9899 8400 07	9899 8400 10	9899 8400 14	9899 8400 15
Required air pressure (bar)		3 - 6		3 - 6		-	
Standard output pressure (MPa)	Jackpot and Jackpack	11 - 13		11 - 13		11 - 13	
	Hydrabolt and X-Pandabolt	-		25 - 27		-	
Supply connections	Water	1" BSP female		1" BSP female		1" BSP female	
	Compressed Air	1" BSP female		1" BSP female		-	



Low Pressure Airpump

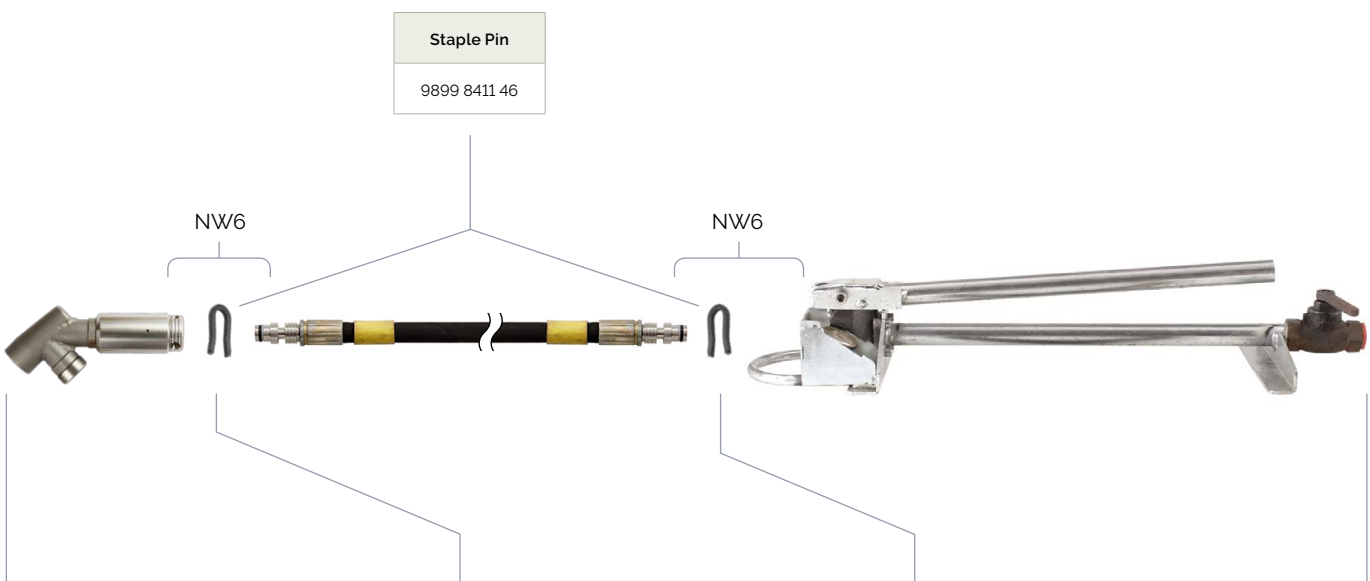


High Pressure Airpump



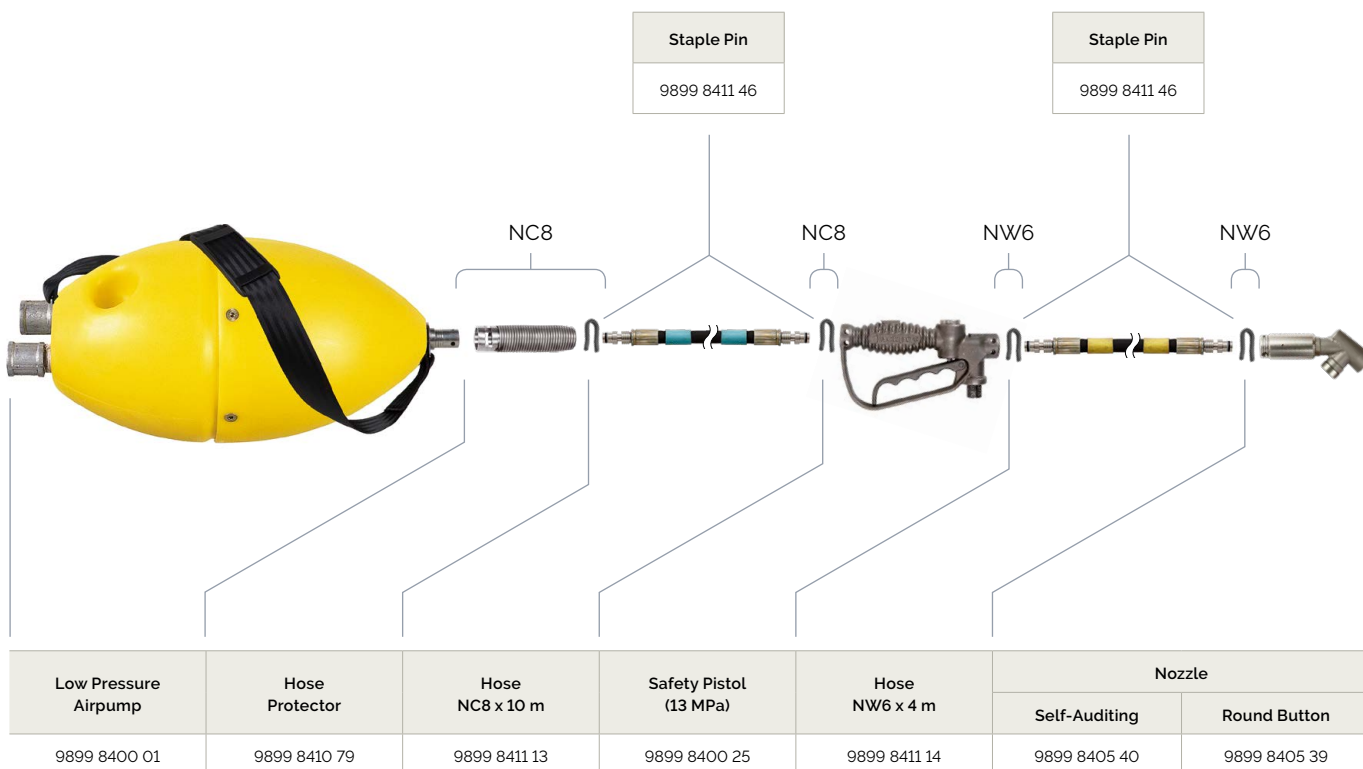
Handpump

## Handpump

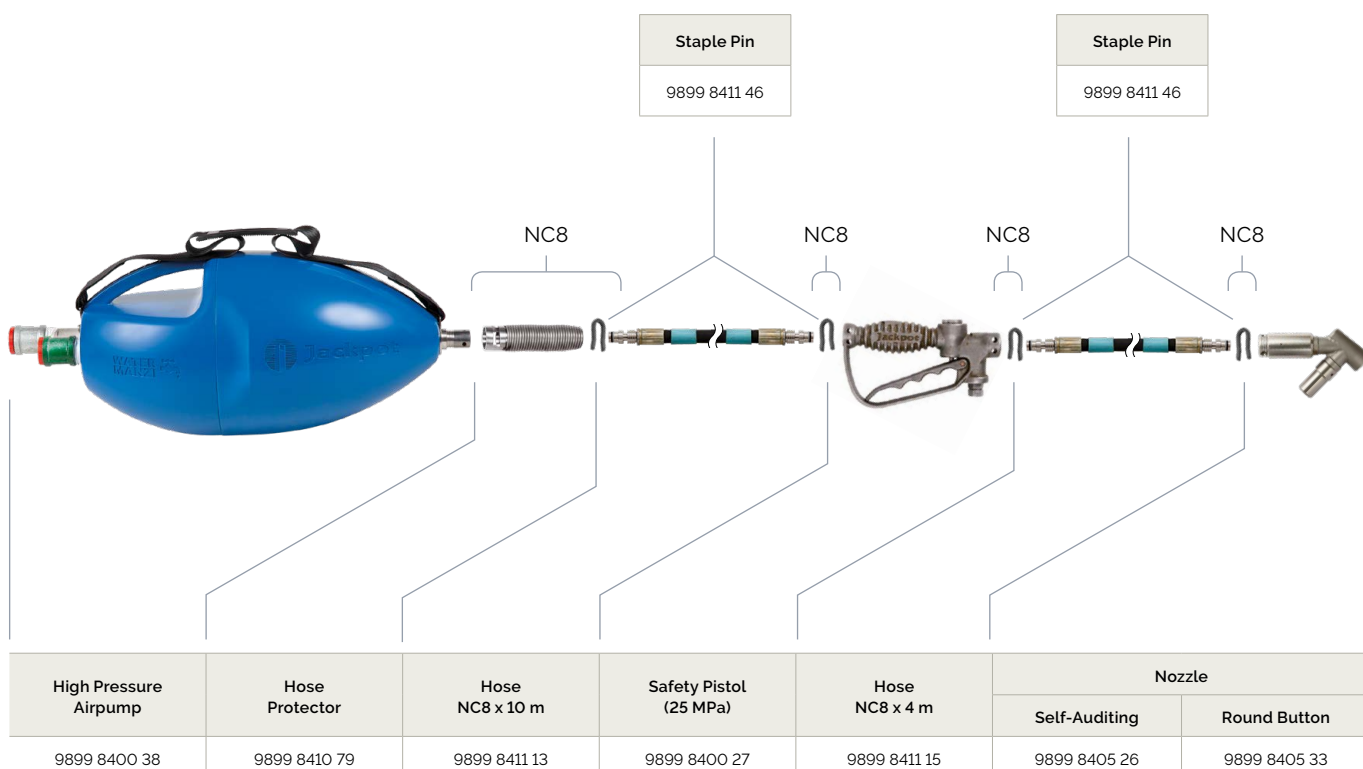


Nozzle		Hose NW6 x 4 m	Handpump
Self-Auditing	Round Button		
9899 8405 40	9899 8405 39	9899 8411 14	9899 8400 40

## Low Pressure Airpump



## High Pressure Airpump



## Airpump and Handpump spares kits

### Airpump and Handpump spares kits

Item	Low Pressure Airpump	High Pressure Airpump	Handpump
Complete repair kit	9899 8411 10	9899 8411 19	9899 8411 21
Safety Pistol repair kit	9899 8411 30	9899 8411 30	-
Safety Pistol pressure relief valve	9899 8405 45	9899 8405 46	-
Nozzle pressure relief valve	-	9899 8405 03	-
Nozzle repair kit	9899 8411 23	9899 8411 23	9899 8411 23
Nozzle seal kit	9899 8411 25	9899 8411 25	9899 8411 25
Setting tool	9899 8411 43	9899 8411 43	9899 8411 43
Setting tool	9899 8411 33	9899 8411 33	9899 8411 32
O-ring kit (NW6)	9899 8411 27	-	9899 8411 82
O-ring kit (NC8)	9899 8411 27	9899 8411 27	-
Airpump housing – front	9899 8410 52	9899 8410 71	-
Airpump housing – rear	9899 8410 56	9899 8410 75	-
Airpump actuator repair kit	9899 8405 01	9899 8405 01	-
Airpump actuator front	9899 8410 22	9899 8410 22	-
Airpump actuator rear	9899 8410 27	9899 8410 27	-

# Swellex pneumatic pumps

## Swellex pneumatic pump, PSP 300 RDP

Description	Weight (kg)	Part number
PSP 300 RDP (no installation arm included)	30.0	8613 2421 40
PSP 300 RDP including arm, chuck, manometer and hose for 12 series bolts (installation arm l=1.6 m)	36.5	8613 2411 34
PSP 300 RDP including arm, chuck, manometer and hose for 16/24 series bolts (installation arm l=1.6 m)	37	8613 2411 35
<b>Technical data</b>		
Max. working pressure for water	300 bar	
Min. working pressure for air	6 bar	
Air consumption at 6 bar, average	18.5 l/s	
Inlet water pressure	2 – 6 bar	
Connections – air	Claw coupling (1/2")	
Connections – water	Claw coupling (1/2")	
Noise level op. ear, 4 m away	Below 96 dB (A)	
Vibrations in the installation arm	Not measurable	
Length x width x height	280 x 850 x 320 mm	
Weight installation arm with valve and chuck	7.0 kg	





# Swellex hydraulic pumps

## Swellex hydraulic pumps, H1, H2R, and HC1-L

Description	Weight (kg)	Part number
H1	36.0	8613 1101 87
H2R high corrosion resistance, ALU/Bronze	36.0	9899 7081 40
HC1-L**	38.0	9899 7009 70
Technical data		
Inlet water pressure	2 – 20 bar	
Max. outlet water pressure	320 bar	
Max. supply water temperature	50°C (H1 /H2R)   60°C (HC1-L)	
Max. water output	14 l/min	
Hydraulic pressure	120 – 160 bar	
Hydraulic flow	40 l/min	
Vibrations in the installation arm	Not measurable	
CE marked	Yes	
Length x width x height	780 x 280 x 275 mm	
Weight of installation arm with valve and chuck	6.5 kg	
Weight of pump, manometer and hose	32 kg	
Weight of chuck only	1.0 kg	

\* Pump also available with special arm.

\*\* Data logging pumps.

# Swellex electric pumps

## Swellex electric pump E1, EC1-L

Description	Voltage	Weight (kg)	Part number
E1 Electric pump	200 – 220VD	80.0	9899 7007 06
	400 VY	80.0	9899 7007 07
	440VY – 60 Hz	80.0	9899 7007 08
	480VY – 60 Hz CSA	80.0	9899 7007 09*
	525VD – 50 Hz	80.0	9899 7007 10
	575VD – 60 Hz CSA	80.0	9899 7007 11*
EC1-L Electric pump**	400 V Europe	90.0	9899 7007 01
	480 V – 60 Hz	90.0	9899 7007 03
	525V – 50 Hz	90.0	9899 7007 04
	575V Canada	90.0	9899 7007 05
Technical data		E1 Electric Pump	EC1-L Electric Pump
Max. working pressure for water		320 bar	320 bar
Inlet water pressure		2 – 20 bar	2 – 20 bar
Max. supply water temperature		40°C	40°C
Flow rate		14 l/min at 50 Hz	14 l/min at 50 Hz
Connection water		Claw coupling (1/2")	Claw coupling (1/2")
Noise level at op. ear, 4 m away		Below 60 dB (A)	Below 60 dB (A)
Vibration in the installation arm		Not measurable	Not measurable
Length x width x height		420 x 775 x 450 mm	420 x 775 x 450 mm
Weight installation arm with valve and chuck		6.5 kg	6.5 kg
Pump weight		80 kg	90 kg
Weight for hoses		2 kg	2 kg
Weight for chuck		1 kg	1 kg

\* c/w remote control connections as a standard feature.

\*\*Data logging pumps.

\*\*High pressure wash feature.

## Installation arms with chuck for PSP300 RDP, H1, H2R and E1

Size	Description	Length (m)	Weight (kg)	Part number
12 series	Installation arm with chuck and manometer	16	12.0	8613 2430 20
16/24 series	Installation arm with chuck and manometer	16	13.0	8613 2430 21

## Installation arms with chuck for HC1-L/EC1-L

Size	Description	Length (m)	Weight (kg)	Part number
12 series	Installation arm with chuck and manometer	16	17.0	9899 7025 64
16/24 series	Installation arm with chuck and manometer	16	18.0	9899 7025 63

## Chucks

Size	Description	Weight (kg)	Part number
12 series	Chuck for installation arm	1.0	8613 2441 05
16/24 series	Chuck for installation arm	1.4	8613 2440 07
12 series	Sealing set*	0.01	6003 5593 00
16/24 series	Sealing set*	0.01	6003 6898 00

\*Sealing sets for all chucks include 1 set piston seals, 10 sets of seal rings.

## Swellex quality assurance gauge

Size	Description	Weight (kg)	Part number
12 series chuck	Pressure gauge, 30 mm	0.70	9899 8805 41
16/24 series chuck	Pressure gauge, 40 mm	0.70	9899 8805 40

## Hose set

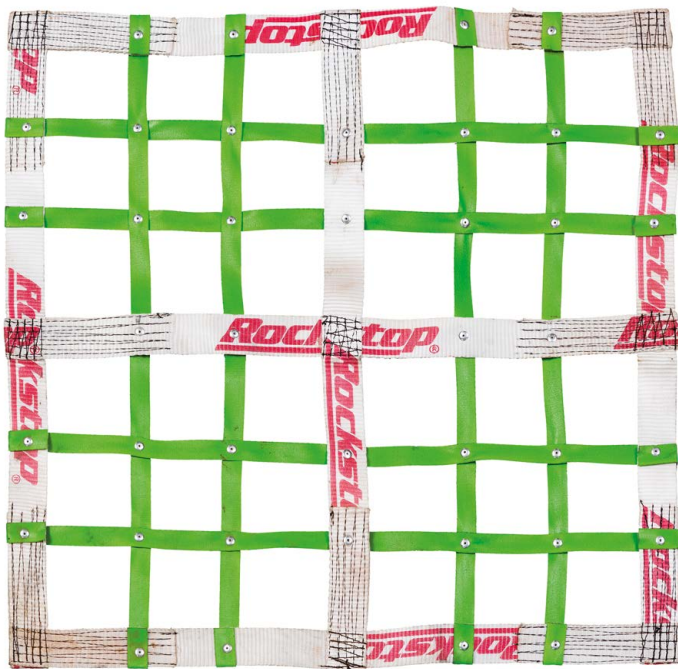
Description	Length (m)	Part number
Hose set PSP (high and low pressure)	15	6003 2334 00
Hose set HC1/EC1 (high and low pressure)	15	9899 7009 36

## Dolly kits

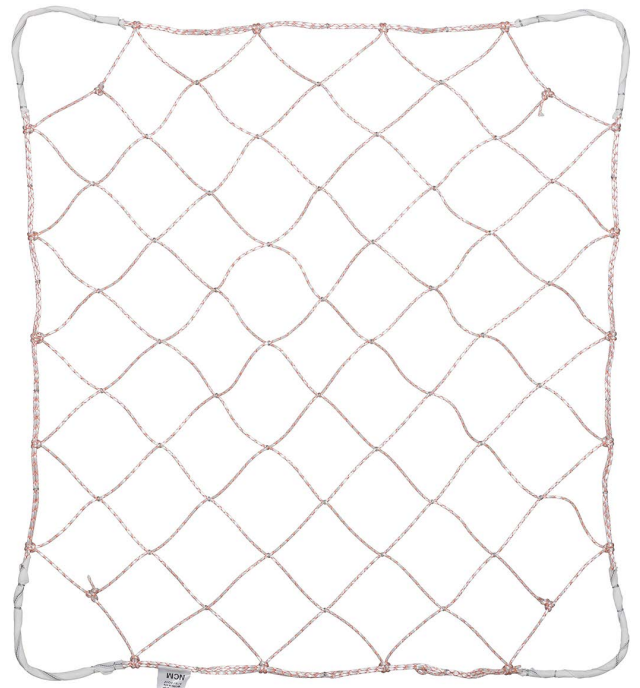
Description	Weight (kg)	Part number
SWX Dolly kit 12	10.3	9106 2016 40
SWX Dolly kit 16/24	11.4	9106 2016 41
SWX Dolly control	8.0	9899 7009 00

# Rockstop safety nets

The Rockstop range of safety nets are used as areal coverage to protect miners from falls of ground occurring between installed permanent and temporary support. The nets can be suspended from temporary supports adjacent to the work face, such as temporary mechanical jacks, and connected to previously installed rockbolts and elongates. The installation of the nets allows miners to move within the work area with the additional protection of the nets improving safety in the work area. Rockstop nets are designed to safely arrest either a 2 tonne or 450 kg mass dropped from a 300 mm height with minimal deflection. Rockstop nets are available with 100 mm and 130 mm apertures in a range of different sizes and net installation accessories such as tensioners, S-hooks and hook installation tools are available to facilitate the safe installation of nets.



Rockstop 2 tonne



Rockstop 450 kg

# Part numbers

## Rockstop 2 tonne

Length (m)	Width (m)	Aperture (mm)	Part number
1.3	1.6	100	9899 8300 05
1.3	2.9	100	9899 8300 06
1.4	3.1	100	9899 8300 08
1.4	4.5	100	9899 8301 50
2.0	2.0	100	9899 8300 28
2.0	3.1	100	9899 8300 16
2.9	2.9	100	9899 8301 31
2.9	4.1	100	9899 8300 22
2.9	4.1	100	9899 8300 23
2.9	4.5	100	9899 8300 24
2.9	5.3	100	9899 8300 25
3.0	3.0	100	9899 8300 50
3.0	4.0	100	9899 8300 53
3.0	4.5	100	9899 8300 52
3.0	6.0	100	9899 8300 56
3.1	3.1	100	9899 8300 34
3.1	7.5	100	9899 8300 40
3.3	3.3	100	9899 8300 42
3.3	4.5	100	9899 8300 43
3.3	6.1	100	9899 8300 44
3.3	7.3	100	9899 8300 45
3.3	7.7	100	9899 8300 46
4.0	6.0	100	9899 8300 59
4.1	10.1	100	9899 8301 32
5.0	5.0	100	9899 8300 61
10	3.0	130	9899 8300 03
14	14	130	9899 8301 24
14	14	130	9899 8301 44
14	3.1	130	9899 8301 34
14	3.1	130	9899 8301 45
14	4.4	130	9899 8300 09
14	6.1	130	9899 8300 10
14	6.1	130	9899 8301 33
14	10.1	130	9899 8300 07
15	3.5	130	9899 8300 11
17	17	130	9899 8300 12
17	3.1	130	9899 8301 18
17	8.1	130	9899 8301 19

Length (m)	Width (m)	Aperture (mm)	Part number
2.0	3.5	130	9899 8300 29
2.0	4.5	130	9899 8300 30
2.0	7.5	130	9899 8300 31
2.4	4.1	130	9899 8300 19
2.4	6.1	130	9899 8300 20
2.4	6.1	130	9899 8301 13
2.4	10.1	130	9899 8300 18
3.0	3.0	130	9899 8300 51
3.0	4.0	130	9899 8300 54
3.0	5.0	130	9899 8300 55
3.0	6.0	130	9899 8300 57
3.1	3.1	130	9899 8300 35
3.1	4.1	130	9899 8300 36
3.1	4.1	130	9899 8301 25
3.1	4.4	130	9899 8300 37
3.1	4.7	130	9899 8301 21
3.1	4.7	130	9899 8301 35
3.1	4.7	130	9899 8301 40
3.1	4.7	130	9899 8301 43
3.1	5.1	130	9899 8300 38
3.1	6.1	130	9899 8300 39
3.1	10.1	130	9899 8300 32
3.1	12	130	9899 8300 33
3.4	8.1	130	9899 8300 49
4.0	6.0	130	9899 8300 60
4.1	6.1	130	9899 8301 22
4.1	6.1	130	9899 8301 26
4.1	8.1	130	9899 8301 27
4.1	8.1	130	9899 8301 28
4.1	10.1	130	9899 8300 58
3.1	3.8	150	9899 8301 23

Additional sizes available upon request.

# Part numbers


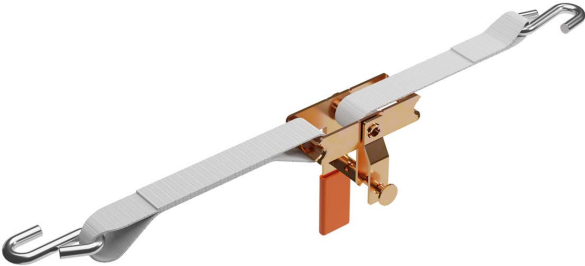



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## Rockstop 450 kg

Length (m)	Width (m)	Aperture (mm)	Part number
1.2	6.0	100	9899 8300 89
1.5	7.5	100	9899 8300 98
1.5	9.0	100	9899 8300 99
2.5	10.5	100	9899 8301 05
1.2	1.5	130	9899 8300 88
1.4	2.9	130	9899 8300 90
1.5	1.5	130	9899 8300 92
1.5	3.0	130	9899 8300 93
1.5	4.5	130	9899 8300 95
1.5	6.0	130	9899 8301 54
1.5	7.5	130	9899 8301 55
1.5	9.0	130	9899 8301 56
1.8	3.0	130	9899 8301 00
2.0	2.6	130	9899 8301 01
2.3	1.5	130	9899 8301 02
2.4	9.0	130	9899 8301 04
2.4	10.5	130	9899 8301 03
3.0	3.0	130	9899 8301 06
3.0	3.8	130	9899 8301 08
3.0	4.5	130	9899 8301 09
3.0	6.0	130	9899 8301 10
5.0	5.0	130	9899 8301 11
1.5	7.5	150	9899 8301 60

Additional sizes available upon request.

## Rockstop installation accessories

	Description	Part number
Single lock position tensioner 1.5 m c/w S-hooks		9899 8305 26
Dual lock position tensioner 1.5 m		9899 8305 01
Height tensioner c/w S-hooks		9899 8305 04
1.0 m long height tensioner installation tool 14 mm hook		9899 8305 05
2.0 m long height tensioner installation tool 14 mm hook		9899 8305 07
2.2 m long height tensioner installation tool 14 mm hook		9899 8305 08
Rockstop 14 mm hook 20 bag		9899 8305 14
Rockstop 16 mm hook 24 bag		9899 8305 18



# Monitoring and warning devices

Early warning devices monitor, detect and warn mining crews of unsafe working conditions, creating a safer work environment underground.





# FOGLight

The FOGLight (Fall Of Ground) indicator is an early warning device designed to detect and warn mining crews of separation in the rock above, helping to prevent losses and providing a safer work environment underground. The FOGLight is simple to install and manufactured from tough materials.

Once installed the FOGLight flashes a green LED to indicate it is in the monitoring mode. Should ground movement between the two ends of the FOGLight exceed the factory set trigger limit the green LED is replaced by a rapidly flashing amber LED. Additionally, the Dual Mode FOGLight has an independent mechanically activated trigger. When the trigger limit is reached the green reflective ring on the FOGLight body falls away to expose a reflective amber ring.



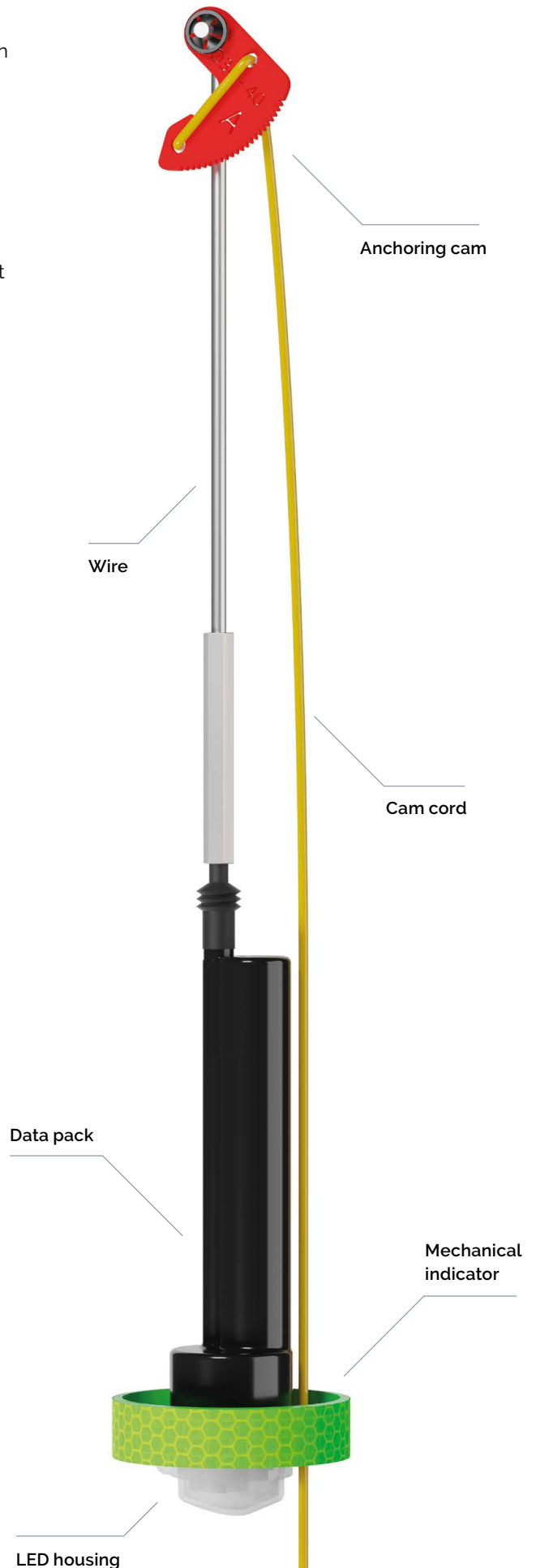
Activated



Disengaging green mechanical indicator



Triggered



# Codes for enquiries

## FOGLight anchoring cams

Cam	Hole diameter (mm)	Cam color
<b>A</b>	32 - 40	Red
<b>B</b>	40 - 46	Blue
<b>C</b>	46 - 52	Green
<b>D</b>	23 - 26	Black
<b>E</b>	26 - 30	Pink

Cam	Hole diameter (mm)	Cam color
<b>F</b>	52 - 58	Yellow
<b>G</b>	49 - 54	White
<b>H</b>	72 - 76	Purple
<b>I</b>	61 - 67	Orange
<b>K</b>	38 - 41	Turquoise

## FOGLight configurator

Additional FOGLight configurations are available on request. Please use this configurator to assist in identifying the FOGLight you require.

### 1. Determine requirements:

#### Length (HL)

This is the length of hole drilled in the rock measured in metres (m) and multiplied by 10 (e.g. 3.5 m becomes 35). **VALUES:** Maximum value of 60 (6.0 m)

#### Segments (SEG)

For optional segmented version append SEG.

#### Cam type (Ø)

The CAM is chosen according to the diameter (Ø) of hole drilled in the rock (see table above). **VALUES:** A, B, C, D, E, F, G, H

#### Displacement (MM)

The amount of rock movement before FOGLight changes signal (FOGLight sensitivity). Measured in millimeters (mm) and multiplied by 10 (e.g. 3.5 mm becomes 35). **VALUES:** 15, 25, 35, 45, 55, 65

#### Dual warning (D)

For optional Dual Warning model append D.

#### Intrinsically safe (IS)

For optional intrinsically safe certification requirement append IS to formula.

### 2. Generate a stock code using the formula:

**JP-FL HL SEG Ø MM D IS**

### 3. Example:

The segmented version is required: YES = **SEG**

The hole length is 3.0 m: (HL) = **30**

The hole diameter (Ø) is 38 mm  
Cam Type = **A** (painted red)

The displacement is 3.5 mm  
Displacement (MM) = **35**

The FOGLight is required to be certified intrinsically safe: YES = **IS**

The Dual Warning model is required: YES = **D**

**JP-FL 30 SEG A 35 D IS**  
(Example stock code)

## FOGLight adaptor washers and installation tool

Description	Part number
FOGLight installation tool	9899 8425 01
FOGLight adaptor (orange)	9899 8425 02
FOGLight cateye washer assy	9899 8430 36





# Rockbolt quality control



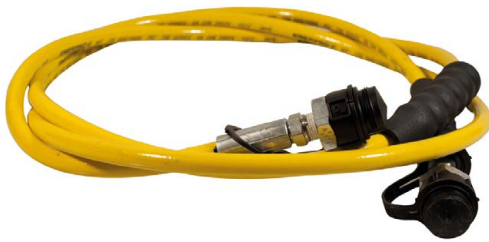


## Swellex pull test equipment

Ref.	Description	Weight (kg)	Part number
	Pull tester SWX manual hydraulic 300 kN including ref. no. 1,2,3,4,5	66.0	9899 8805 03
1	SWX-SDA-Rx pull tester hydraulic set manual	19.0	9899 7030 18
2	SWX-SDA-Rx pull test frame complete	20.8	9899 8805 14
3	SWX-SDA-Rx pull tester tools and accessory set	4.0	9899 8805 12
4	SWX for Pm/Mn12/16/24 grip kit	9.7	9899 8805 15
5	Box for pull tester	18.5	9899 8805 29

## Swellex steel sleeves – required for anchorage tests

Size	Description	Weight (kg)	Part number
Mn/Pm12 series	Sleeve, length 300 mm	0.5	9899 8805 31
Mn/Pm16/24 series	Sleeve, length 300 mm	0.8	9899 8805 30



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