

Hexagonal bolt with shank

ISO 4014 steel 10.9, zinc flake, silver (ZFSHL)

Zinc-flake coatings are chromium (VI)-free corrosion protection coatings for commercial vehicle construction, construction machines, agricultural vehicles and equipment, and all other fields that have vehicle construction standard corrosion protection requirements.

The corrosion resistance of ZFHSL is as follows:

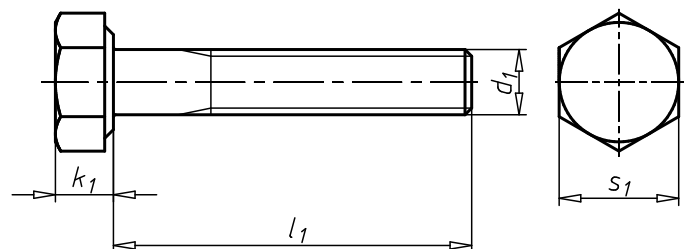
- Diameter \geq M6 - 480h*
- Diameter \geq M10 - 720h*
- * Guideline values: No base metal corrosion at points without thread in salt spray tests according to DIN EN ISO 9227 NSS.

The designation ZFSHL refers to the following corrosion coating:

- Zinc flake coating, with top coat, silver colour, with lubrication that alters the friction coefficient.
- Adjusted friction coefficient range from 0.09-0.14 μ due to top coat with integrated lubricating particles



Standards	ISO 4014
Material	Steel
Property class	10.9
Surface	Flake zinc silver
RoHS-compliant	Yes



Thread type x nominal diameter (d ₁)	Length (l ₁)	Head height (k ₁)	Thread length (metric thread) (b)	External drive (s ₁)	Corrosion protection period	Art. no.	P. Qty.
M6	30 mm	4 mm	18 mm	WS10	480 h	4146 46 30	500
M6	35 mm	4 mm	18 mm	WS10	480 h	4146 46 35	200
M6	40 mm	4 mm	18 mm	WS10	480 h	4146 46 40	200
M6	45 mm	4 mm	18 mm	WS10	480 h	4146 46 45	200
M6	50 mm	4 mm	18 mm	WS10	480 h	4146 46 50	200
M6	55 mm	4 mm	18 mm	WS10	480 h	4146 46 55	200
M6	60 mm	4 mm	18 mm	WS10	480 h	4146 46 60	200
M6	65 mm	4 mm	18 mm	WS10	480 h	4146 46 65	200
M6	70 mm	4 mm	18 mm	WS10	480 h	4146 46 70	200
M6	75 mm	4 mm	18 mm	WS10	480 h	4146 46 75	200
M6	80 mm	4 mm	18 mm	WS10	480 h	4146 46 80	200
M6	90 mm	4 mm	18 mm	WS10	480 h	4146 46 90	100
M8	40 mm	5.3 mm	22 mm	WS13	480 h	4146 48 40	200
M8	45 mm	5.3 mm	22 mm	WS13	480 h	4146 48 45	200
M8	50 mm	5.3 mm	22 mm	WS13	480 h	4146 48 50	200

Thread type x nominal diameter (d ₁)	Length (l ₁)	Head height (k ₁)	Thread length (metric thread) (b)	External drive (s ₁)	Corrosion protection period	Art. no.	P. Qty.
M8	55 mm	5.3 mm	22 mm	WS13	480 h	4146 48 55	200
M8	60 mm	5.3 mm	22 mm	WS13	480 h	4146 48 60	100/200
M8	65 mm	5.3 mm	22 mm	WS13	480 h	4146 48 65	100/200
M8	70 mm	5.3 mm	22 mm	WS13	480 h	4146 48 70	100/200
M8	75 mm	5.3 mm	22 mm	WS13	480 h	4146 48 75	200
M8	80 mm	5.3 mm	22 mm	WS13	480 h	4146 48 80	100/200
M8	85 mm	5.3 mm	22 mm	WS13	480 h	4146 48 85	100
M8	90 mm	5.3 mm	22 mm	WS13	480 h	4146 48 90	100
M8	100 mm	5.3 mm	22 mm	WS13	480 h	4146 48 100	100
M8	110 mm	5.3 mm	22 mm	WS13	480 h	4146 48 110	100
M8	130 mm	5.3 mm	28 mm	WS13	480 h	4146 48 130	75
M8	140 mm	5.3 mm	28 mm	WS13	480 h	4146 48 140	75
M8	170 mm	5.3 mm	28 mm	WS13	480 h	4146 48 170	100
M10	45 mm	6.4 mm	26 mm	WS16	720 h	4146 410 45	100
M10	50 mm	6.4 mm	26 mm	WS16	720 h	4146 410 50	100
M10	55 mm	6.4 mm	26 mm	WS16	720 h	4146 410 55	100
M10	60 mm	6.4 mm	26 mm	WS16	720 h	4146 410 60	100
M10	65 mm	6.4 mm	26 mm	WS16	720 h	4146 410 65	100
M10	70 mm	6.4 mm	26 mm	WS16	720 h	4146 410 70	100
M10	75 mm	6.4 mm	26 mm	WS16	720 h	4146 410 75	100
M10	80 mm	6.4 mm	26 mm	WS16	720 h	4146 410 80	100
M10	85 mm	6.4 mm	26 mm	WS16	720 h	4146 410 85	100
M10	90 mm	6.4 mm	26 mm	WS16	720 h	4146 410 90	100
M10	95 mm	6.4 mm	26 mm	WS16	720 h	4146 410 95	100
M10	100 mm	6.4 mm	26 mm	WS16	720 h	4146 410 100	50/100 /150
M10	110 mm	6.4 mm	26 mm	WS16	720 h	4146 410 110	50
M10	120 mm	6.4 mm	26 mm	WS16	720 h	4146 410 120	50
M10	125 mm	6.4 mm	26 mm	WS16	720 h	4146 410 125	50
M10	130 mm	6.4 mm	32 mm	WS16	720 h	4146 410 130	50
M10	140 mm	6.4 mm	32 mm	WS16	720 h	4146 410 140	50
M10	150 mm	6.4 mm	32 mm	WS16	720 h	4146 410 150	50
M10	160 mm	6.4 mm	32 mm	WS16	720 h	4146 410 160	50
M10	170 mm	6.4 mm	32 mm	WS16	720 h	4146 410 170	50
M10	180 mm	6.4 mm	32 mm	WS16	720 h	4146 410 180	50
M10	190 mm	6.4 mm	32 mm	WS16	720 h	4146 410 190	50
M10	210 mm	6.4 mm	45 mm	WS16	720 h	4146 410 210	25
M10	220 mm	6.4 mm	45 mm	WS16	720 h	4146 410 220	50
M12	50 mm	7.5 mm	30 mm	WS18	720 h	4146 412 50	100
M12	55 mm	7.5 mm	30 mm	WS18	720 h	4146 412 55	100
M12	60 mm	7.5 mm	30 mm	WS18	720 h	4146 412 60	100
M12	65 mm	7.5 mm	30 mm	WS18	720 h	4146 412 65	50
M12	70 mm	7.5 mm	30 mm	WS18	720 h	4146 412 70	50
M12	75 mm	7.5 mm	30 mm	WS18	720 h	4146 412 75	50
M12	80 mm	7.5 mm	30 mm	WS18	720 h	4146 412 80	50
M12	85 mm	7.5 mm	30 mm	WS18	720 h	4146 412 85	50
M12	90 mm	7.5 mm	30 mm	WS18	720 h	4146 412 90	50
M12	95 mm	7.5 mm	30 mm	WS18	720 h	4146 412 95	50
M12	100 mm	7.5 mm	30 mm	WS18	720 h	4146 412 100	50
M12	110 mm	7.5 mm	30 mm	WS18	720 h	4146 412 110	50
M12	120 mm	7.5 mm	30 mm	WS18	720 h	4146 412 120	50
M12	125 mm	7.5 mm	30 mm	WS18	720 h	4146 412 125	50
M12	130 mm	7.5 mm	36 mm	WS18	720 h	4146 412 130	50

Thread type x nominal diameter (d ₁)	Length (l ₁)	Head height (k ₁)	Thread length (metric thread) (b)	External drive (s ₁)	Corrosion protection period	Art. no.	P. Qty.
M12	140 mm	7.5 mm	36 mm	WS18	720 h	4146 412 140	50
M12	150 mm	7.5 mm	36 mm	WS18	720 h	4146 412 150	50
M12	160 mm	7.5 mm	36 mm	WS18	720 h	4146 412 160	25
M12	170 mm	7.5 mm	36 mm	WS18	720 h	4146 412 170	25
M12	180 mm	7.5 mm	36 mm	WS18	720 h	4146 412 180	25
M12	200 mm	7.5 mm	36 mm	WS18	720 h	4146 412 200	25
M12	220 mm	7.5 mm	49 mm	WS18	720 h	4146 412 220	25
M12	230 mm	7.5 mm	49 mm	WS18	720 h	4146 412 230	25
M12	240 mm	7.5 mm	49 mm	WS18	720 h	4146 412 240	25
M14	60 mm	8.8 mm	34 mm	WS21	720 h	4146 414 60	50
M14	65 mm	8.8 mm	34 mm	WS21	720 h	4146 414 65	100
M14	70 mm	8.8 mm	34 mm	WS21	720 h	4146 414 70	50
M14	80 mm	8.8 mm	34 mm	WS21	720 h	4146 414 80	50
M14	85 mm	8.8 mm	34 mm	WS21	720 h	4146 414 85	50
M14	90 mm	8.8 mm	34 mm	WS21	720 h	4146 414 90	50
M14	95 mm	8.8 mm	34 mm	WS21	720 h	4146 414 95	50
M14	100 mm	8.8 mm	34 mm	WS21	720 h	4146 414 100	50
M14	110 mm	8.8 mm	34 mm	WS21	720 h	4146 414 110	25/50
M14	120 mm	8.8 mm	34 mm	WS21	720 h	4146 414 120	25/50
M14	130 mm	8.8 mm	40 mm	WS21	720 h	4146 414 130	25
M14	140 mm	8.8 mm	40 mm	WS21	720 h	4146 414 140	25
M14	150 mm	8.8 mm	40 mm	WS21	720 h	4146 414 150	25
M14	160 mm	8.8 mm	40 mm	WS21	720 h	4146 414 160	25
M14	180 mm	8.8 mm	40 mm	WS21	720 h	4146 414 180	25
M14	200 mm	8.8 mm	40 mm	WS21	720 h	4146 414 200	25
M16	65 mm	10 mm	38 mm	WS24	720 h	4146 416 65	25/50
M16	70 mm	10 mm	38 mm	WS24	720 h	4146 416 70	25/50
M16	75 mm	10 mm	38 mm	WS24	720 h	4146 416 75	25
M16	80 mm	10 mm	38 mm	WS24	720 h	4146 416 80	25
M16	85 mm	10 mm	38 mm	WS24	720 h	4146 416 85	25
M16	90 mm	10 mm	38 mm	WS24	720 h	4146 416 90	25
M16	95 mm	10 mm	38 mm	WS24	720 h	4146 416 95	25
M16	100 mm	10 mm	38 mm	WS24	720 h	4146 416 100	25
M16	110 mm	10 mm	38 mm	WS24	720 h	4146 416 110	25
M16	120 mm	10 mm	38 mm	WS24	720 h	4146 416 120	25
M16	125 mm	10 mm	38 mm	WS24	720 h	4146 416 125	25
M16	130 mm	10 mm	44 mm	WS24	720 h	4146 416 130	25
M16	140 mm	10 mm	44 mm	WS24	720 h	4146 416 140	25
M16	150 mm	10 mm	44 mm	WS24	720 h	4146 416 150	25
M16	160 mm	10 mm	44 mm	WS24	720 h	4146 416 160	25
M16	170 mm	10 mm	44 mm	WS24	720 h	4146 416 170	25
M16	190 mm	10 mm	44 mm	WS24	720 h	4146 416 190	25
M16	200 mm	10 mm	57 mm	WS24	720 h	4146 416 200	25
M16	210 mm	10 mm	57 mm	WS24	720 h	4146 416 210	25
M16	220 mm	10 mm	57 mm	WS24	720 h	4146 416 220	25
M16	230 mm	10 mm	57 mm	WS24	720 h	4146 416 230	25
M16	240 mm	10 mm	57 mm	WS24	720 h	4146 416 240	25
M18	75 mm	11.5 mm	42 mm	WS27	720 h	4146 418 75	25
M18	80 mm	11.5 mm	42 mm	WS27	720 h	4146 418 80	25
M18	90 mm	11.5 mm	42 mm	WS27	720 h	4146 418 90	25
M18	100 mm	11.5 mm	42 mm	WS27	720 h	4146 418 100	25
M18	110 mm	11.5 mm	42 mm	WS27	720 h	4146 418 110	25
M18	120 mm	11.5 mm	42 mm	WS27	720 h	4146 418 120	25

Thread type x nominal diameter (d ₁)	Length (l ₁)	Head height (k ₁)	Thread length (metric thread) (b)	External drive (s ₁)	Corrosion protection period	Art. no.	P. Qty.
M18	130 mm	11.5 mm	48 mm	WS27	720 h	4146 418 130	25
M18	140 mm	11.5 mm	48 mm	WS27	720 h	4146 418 140	25
M18	160 mm	11.5 mm	48 mm	WS27	720 h	4146 418 160	25
M20	75 mm	12.5 mm	46 mm	WS30	720 h	4146 420 75	25
M20	80 mm	12.5 mm	46 mm	WS30	720 h	4146 420 80	25
M20	85 mm	12.5 mm	46 mm	WS30	720 h	4146 420 85	25
M20	90 mm	12.5 mm	46 mm	WS30	720 h	4146 420 90	25
M20	100 mm	12.5 mm	46 mm	WS30	720 h	4146 420 100	25
M20	110 mm	12.5 mm	46 mm	WS30	720 h	4146 420 110	25
M20	120 mm	12.5 mm	46 mm	WS30	720 h	4146 420 120	25
M20	130 mm	12.5 mm	52 mm	WS30	720 h	4146 420 130	25
M20	140 mm	12.5 mm	52 mm	WS30	720 h	4146 420 140	25
M20	150 mm	12.5 mm	52 mm	WS30	720 h	4146 420 150	25
M20	160 mm	12.5 mm	52 mm	WS30	720 h	4146 420 160	10/25
M20	170 mm	12.5 mm	52 mm	WS30	720 h	4146 420 170	10
M20	180 mm	12.5 mm	52 mm	WS30	720 h	4146 420 180	10
M20	190 mm	12.5 mm	52 mm	WS30	720 h	4146 420 190	10
M20	200 mm	12.5 mm	52 mm	WS30	720 h	4146 420 200	10
M20	210 mm	12.5 mm	65 mm	WS30	720 h	4146 420 210	10
M20	220 mm	12.5 mm	65 mm	WS30	720 h	4146 420 220	10
M20	230 mm	12.5 mm	65 mm	WS30	720 h	4146 420 230	10
M20	240 mm	12.5 mm	65 mm	WS30	720 h	4146 420 240	10
M20	250 mm	12.5 mm	65 mm	WS30	720 h	4146 420 250	10
M20	260 mm	12.5 mm	65 mm	WS30	720 h	4146 420 260	10
M20	270 mm	12.5 mm	65 mm	WS30	720 h	4146 420 270	10
M20	280 mm	12.5 mm	65 mm	WS30	720 h	4146 420 280	10
M20	300 mm	12.5 mm	65 mm	WS30	720 h	4146 420 300	5
M20	310 mm	12.5 mm	65 mm	WS30	720 h	4146 420 310	10
M20	320 mm	12.5 mm	65 mm	WS30	720 h	4146 420 320	10
M20	330 mm	12.5 mm	65 mm	WS30	720 h	4146 420 330	10
M20	340 mm	12.5 mm	65 mm	WS30	720 h	4146 420 340	10
M24	85 mm	15 mm	54 mm	WS36	720 h	4146 424 85	20
M24	90 mm	15 mm	54 mm	WS36	720 h	4146 424 90	10
M24	95 mm	15 mm	54 mm	WS36	720 h	4146 424 95	25
M24	100 mm	15 mm	54 mm	WS36	720 h	4146 424 100	10
M24	110 mm	15 mm	54 mm	WS36	720 h	4146 424 110	10
M24	120 mm	15 mm	54 mm	WS36	720 h	4146 424 120	10
M24	125 mm	15 mm	54 mm	WS36	720 h	4146 424 125	10
M24	130 mm	15 mm	60 mm	WS36	720 h	4146 424 130	10
M24	140 mm	15 mm	60 mm	WS36	720 h	4146 424 140	10
M24	150 mm	15 mm	60 mm	WS36	720 h	4146 424 150	10/30
M24	160 mm	15 mm	60 mm	WS36	720 h	4146 424 160	10
M24	170 mm	15 mm	60 mm	WS36	720 h	4146 424 170	10/30
M24	180 mm	15 mm	60 mm	WS36	720 h	4146 424 180	10
M24	190 mm	15 mm	60 mm	WS36	720 h	4146 424 190	10
M24	200 mm	15 mm	60 mm	WS36	720 h	4146 424 200	10
M24	210 mm	15 mm	73 mm	WS36	720 h	4146 424 210	10
M24	220 mm	15 mm	73 mm	WS36	720 h	4146 424 220	10
M24	230 mm	15 mm	73 mm	WS36	720 h	4146 424 230	10
M24	240 mm	15 mm	73 mm	WS36	720 h	4146 424 240	10
M24	250 mm	15 mm	73 mm	WS36	720 h	4146 424 250	10
M24	260 mm	15 mm	73 mm	WS36	720 h	4146 424 260	10
M24	270 mm	15 mm	73 mm	WS36	720 h	4146 424 270	10

Thread type x nominal diameter (d ₁)	Length (l ₁)	Head height (k ₁)	Thread length (metric thread) (b)	External drive (s ₁)	Corrosion protection period	Art. no.	P. Qty.
M24	280 mm	15 mm	73 mm	WS36	720 h	4146 424 280	10
M24	290 mm	15 mm	73 mm	WS36	720 h	4146 424 290	10
M24	300 mm	15 mm	73 mm	WS36	720 h	4146 424 300	10
M24	320 mm	15 mm	73 mm	WS36	720 h	4146 424 320	5
M30	110 mm	18.7 mm	66 mm	WS46	720 h	4146 430 110	10
M30	120 mm	18.7 mm	66 mm	WS46	720 h	4146 430 120	10
M30	130 mm	18.7 mm	72 mm	WS46	720 h	4146 430 130	10
M30	140 mm	18.7 mm	72 mm	WS46	720 h	4146 430 140	10
M30	150 mm	18.7 mm	72 mm	WS46	720 h	4146 430 150	10
M30	160 mm	18.7 mm	72 mm	WS46	720 h	4146 430 160	10
M30	170 mm	18.7 mm	72 mm	WS46	720 h	4146 430 170	10
M30	180 mm	18.7 mm	72 mm	WS46	720 h	4146 430 180	5/20
M30	190 mm	18.7 mm	72 mm	WS46	720 h	4146 430 190	5
M30	200 mm	18.7 mm	72 mm	WS46	720 h	4146 430 200	5/10
M30	220 mm	18.7 mm	85 mm	WS46	720 h	4146 430 220	15
M30	240 mm	18.7 mm	85 mm	WS46	720 h	4146 430 240	5
M30	250 mm	18.7 mm	85 mm	WS46	720 h	4146 430 250	5
M30	260 mm	18.7 mm	85 mm	WS46	720 h	4146 430 260	5
M30	280 mm	18.7 mm	85 mm	WS46	720 h	4146 430 280	5
M36	150 mm	22.5 mm	84 mm	WS55	720 h	4146 436 150	5
M36	180 mm	22.5 mm	84 mm	WS55	720 h	4146 436 180	5
M36	200 mm	22.5 mm	84 mm	WS55	720 h	4146 436 200	5
M36	220 mm	22.5 mm	97 mm	WS55	720 h	4146 436 220	5
M36	240 mm	22.5 mm	97 mm	WS55	720 h	4146 436 240	1
M36	260 mm	22.5 mm	97 mm	WS55	720 h	4146 436 260	5
M36	270 mm	22.5 mm	97 mm	WS55	720 h	4146 436 270	5
M36	320 mm	22.5 mm	97 mm	WS55	720 h	4146 436 320	5

Notice

ISO 4014 replaces DIN 931 | There is some similarity | Nominal dimensions extended | Width across flats changed for M10, M12, M14 and M22.