NOVÁ HUŤ

THREADED BARS

NOVÁ HUŤ

Technical Characteristics of the System

- Easy length adjustment, due to the entire coarse thread over the whole length of the bar
- Shortening by cutting and extension by accessories also possible on the construction site
- Easier to screw compared to standard threads
- The coarse thread is resistant to rough handling and dirt, because the coarse thread cleans itself during assembling

Service

- Worldwide shipments including all administrative formalities
- Fast communication, flexibility & reliability
- On time delivery
- Quick and accurate document handling

On Request

- Special lengths & bundling
- Charpy test-Value: 28 J at -20 °C for diameter 15 and 20 mm

THREADED BARS

1 Threaded Bars

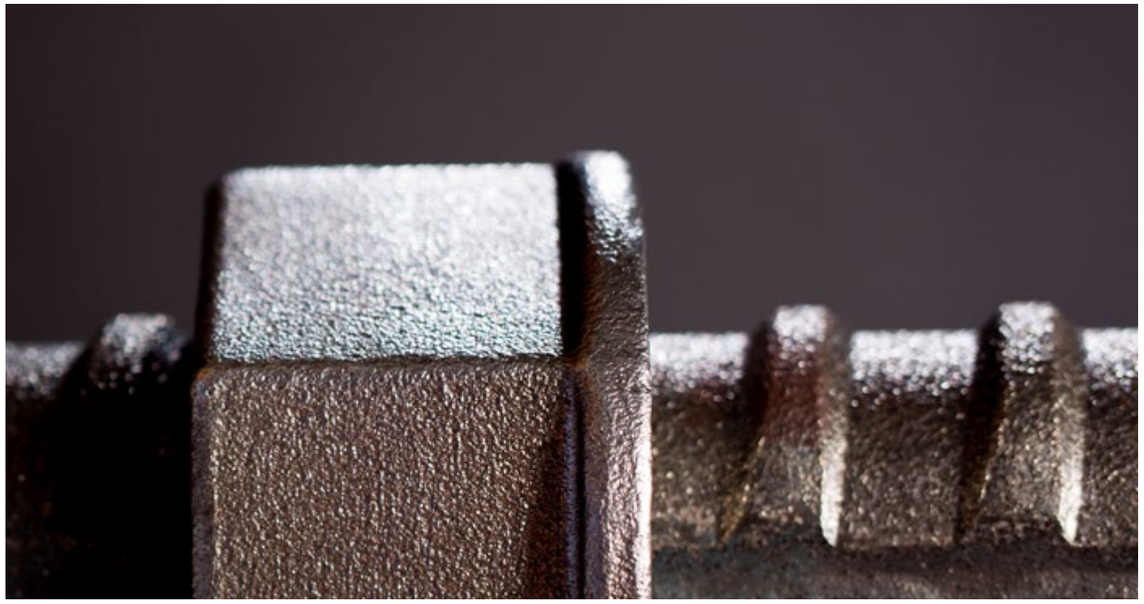
Form Tie Bars

Nová Huť Offers

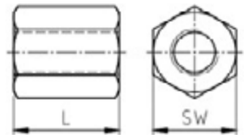
- Ø 15 mm in length of 6000 mm or 12000 mm [bundles of 100 bars]
- Ø 20 mm in length of 6000 mm or 12000 mm [bundles of 75 bars]
- Ø 26,5 mm in length of 6000 mm or 12000 mm [bundles of 50 bars]
- Certifications in different markets
- Marking of the bar and traceability of the product

FTB Grade 160 St 900/1100							
Nominal Diameter d [mm]	Working Load F_{WL} [kN]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Elongation Agt [%]	Elongation A_{10} (min) [%]	Weight [kg/m]	Nominal Cross section A [mm²]
15	90	155	190	4	7	1.41	172
20	160	279	340	4	7	2.51	309
26.5	280	495	606	4	7	4.48	551

By using of the Nová Huť Form Tie Bars you are assured that all above criteria are satisfied, which will be specified in a 3.1 certificate issued of each delivery.



Hex Nut

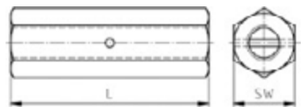


Article No.	Working Load FWL [kN]	SW [mm]	L [mm]	Weight [kg]
15 FT 2102/50	90	30	50	0.22
15 FT 2102/70	90	30	70	0.30
20 FT 2102/70	160	36	70	0.40
26 FT 2102/60	200	46	60	0.54
26 FT 2102/80	250	46	80	0.74

Coupler with Pin

Article No.	Working Load FWL [kN]	Ø [mm]	L [mm]	Weight [kg]
15 FT 3197/105	90	30	105	0.40
20 FT 3197/130	160	40	130	0.85

Hex Coupler with Pin



Article No.	Working Load FWL [kN]	SW [mm]	L [mm]	Weight [kg]
15 FT 3198/90	80	30	90	0.40
15 FT 3198/105	90	30	105	0.45
20 FT 3198/130	160	36	130	0.74
26 FT 3198/120	200	46	120	1.09
26 FT 3198/150	250	46	150	1.36

2 Threaded Bars

Rock Bolts

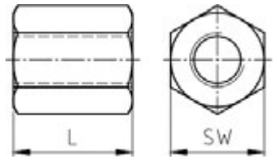
Nová Huť Offers: Hot Rolled Right- Hand Threaded Bars

- Ø 16 mm in length of 6000 mm or 12000 mm
- Ø 22 mm in length of 6000 mm or 12000 mm
- Ø 25 mm in length of 6000 mm or 12000 mm
- Ø 28 mm in length of 6000 mm or 12000 mm

Thread Bar with Continuous, Right-Hand, Rolled on Thread

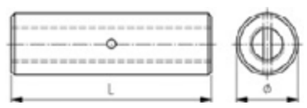
Nominal Diameter d [mm]	Steel Grade	Yield strength $R_{e,nom}$ [MPa]	Yield Load $F_{e,nom}$ [kN]	Tensile strength $R_{m,nom}$ [MPa]	Ultimate Load $F_{m,nom}$ [kN]	Elongation A_5 [%]	Weight [kg/m]	Nominal Cross section A [mm²]
16	450/700	450	90	700	141	15	1.58	201
22	640/800	640	245	800	304	18	2.98	380
25	500/700	500	246	700	344	20	3.85	491
28	640/800	640	395	800	493	18	4.83	616

Hex Nut



Article No.	SW [mm]	L [mm]	Weight [kg]
16 R 2002	36	45	0.31
22 R 2002	41	50	0.39
25 R 2002	46	55	0.53

Coupler



Article No.	SW [mm]	L [mm]	Weight [kg]
16 R 3003	36	100	0.60
22 R 3003	40	110	0.71
25 R 3003	45	120	0.94

3 Threaded Bars

Threaded Bars

Advantages Over Conventional Reinforcement

- Anchorage length can be reduced by special end anchorages
- Lap splices can be replaced by a simple coupler connection
- Reduction of the reinforcement with constant load bearing capacity by using a higher steel grade

Technical Specification

Mechanical properties for 500/550:
Strength: $R_{e,nom}$ = 500 MPa; $R_{m,nom}$ = 550 MPa
Elongation: A_{gtmin} = 6%, 5%

Mechanical properties for 555/700:
Strength: $R_{e,nom}$ = 555 MPa; $R_{m,nom}$ = 700 MPa
Elongation: A_{gtmin} = 5%

Mechanical properties for 550/620:
Strength: $R_{e,nom}$ = 550 MPa; $R_{m,nom}$ = 620 MPa
Elongation: A_{gtmin} = 5%

Mechanical properties for 670/800:
Strength: $R_{e,nom}$ = 670 MPa; $R_{m,nom}$ = 800 MPa
Elongation: A_{gt} = 5%

Delivery Statement:
Hot rolled bar with right-handed and left-handed thread ribs.

Weldability:
For structural welding, specific procedures for high carbon steel must be respected.

Application:
Tightened coupling splices and anchorages
Length: standard 12 m - 15 m - 0 / + 0.3 m, other lengths upon agreement with supplier. Density: 7.85 kg/dm³

Inspection:
Mill certificate 3.1 according to EN 10204.

Ostrava Thread Bars 500/550, 555/700, Left-hand Thread

OTB 500/550, OTB 555/700								
Nominal Diameter d [mm]	Outer Diameter d_a [mm]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Yield Strength[1),2)] $R_{e,nom}$ [MPa]	Tensile Strength[1)] $R_{m,nom}$ [MPa]	Elongation A_{gt} [%]	Nominal Cross section A [mm²]	Weight [kg/m]
16	17.9	100	110	500	550	6	201	1.58
20	22.4	157	172	500	550	6	314	2.47
25	27.9	246	270	500	550	6	491	3.85
28	31.2	308	339	500	550	6	616	4.83
32	35.7	402	442	500	550	6	804	6.31
40	44.6	629	691	500	550	5	1257	9.87
50	55.6	982	1078	500	550	5	1963	15.41
57.5	62.8	1441	1818	555	700	5	2597	20.39
63.5	69.0	1758	2217	555	700	5	3167	24.86
75	81.5	2209	2430	500	550	5	4418	34.68

3 THREADED BARS > **THREADED BARS 500, 550, 555, 670**

Ostrava Thread Bars 550/620, Left-hand Thread

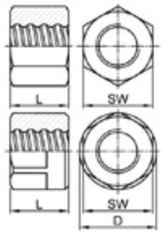
OTB 550/620								
Nominal Diameter d [mm]	Outer Diameter d_a [mm]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Yield Strength[1),2)] $R_{e,nom}$ [MPa]	Tensile Strength[1)] $R_{m,nom}$ [MPa]	Elongation A_{gt} [%]	Nominal Cross section A [mm²]	Weight [kg/m]
20	22.4	173	195	550	620	5	314	2.47
25	27.9	270	304	550	620	5	491	3.85
28	31.2	339	382	550	620	5	616	4.83
32	35.7	442	499	550	620	5	804	6.31
40	44.6	691	779	550	620	5	1257	9.87
50	55.6	1080	1217	550	620	5	1963	15.41
57.5	62.8	1428	1610	550	620	5	2597	20.39
63.5	69.0	1742	1963	550	620	5	3167	24.86
75	81.5	2430	2739	550	620	5	4418	34.68

1) 5%-fractile
2) Yield strength R_e corresponds to $R_{p0,2}$, 0.2% proof strength

Ostrava Thread Bars 670/800, Right-hand Thread

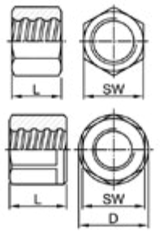
OTB 670/800								
Nominal Diameter d [mm]	Outer Diameter d_a [mm]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Yield Strength[1),2)] $R_{e,nom}$ [MPa]	Tensile Strength[1)] $R_{m,nom}$ [MPa]	Elongation A_{gt} [%]	Nominal Cross section A [mm²]	Weight [kg/m]
18	20.4	170	203	670	800	5	254	2.00
22	24.2	255	304	670	800	5	380	2.98
25	27.5	329	393	670	800	5	491	3.85
28	31.2	413	493	670	800	5	616	4.84
30	33.5	474	566	670	800	5	707	5.55
35	39.2	645	770	670	800	5	962	7.55
43	47.9	973	1162	670	800	5	1452	11.40
50	54.6	1315	1570	670	800	5	1963	15.41
57.5	62.8	1740	2078	670	800	5	2597	20.39
63.5	69.0	2122	2534	670	800	5	3167	24.86
75	81.5	2960	3534	670	800	5	4418	34.68

Hexagonal Nut **L2002**



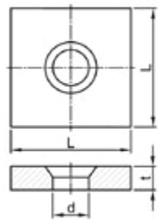
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
16L	0.20	32	40	-
20L	0.27	36	45	-
25L	0.34	41	50	-
28L	0.48	46	55	-
32L	0.79	55	60	-
40L	1.20	65	70	-
50L	2.17	80	85	-
57L	3.42	90	100	102
63L	6.15	100	135	114
75L	3.00	100	100	108

Lock Nut, Long **L2003**



Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
16L	0.15	32	30	-
20L	0.16	32	40	-
25L	0.28	41	40	-
28L	0.26	41	45	-
32L	0.48	50	50	-
40L	0.84	60	65	-
50L	2.04	80	80	-
57L	2.77	90	80	102
63L	3.43	90	115	102
75L	2.34	100	80	108

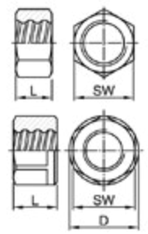
Plate for Spherical. Nut **L2011**



Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
16L	0.24	60	10	25
20L	0.37	70	12	30
25L	0.81	90	15	35
28L	1.33	100	20	40
32L	1.91	120	20	52
40L	4.48	150	30	65
50L	10.78	190	45	83
57L	16.25	220	50	92
63L	20.09	245	50	104
75L	32.43	275	65	118

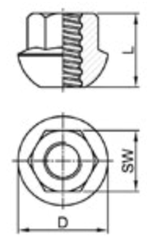
3.1 THREADED BARS > THREADED BARS 500, 550, 555, 670 > **ACCESSORIES FOR 500/550, 550/620 AND 555/700**

Lock Nut, Short **L2040**



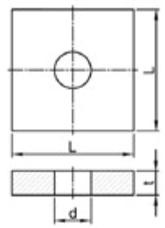
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
16L	0.10	32	20	-
20L	0.08	32	20	-
25L	0.14	41	20	-
28L	0.15	41	25	-
32L	0.31	50	30	58
40L	0.50	60	35	70
50L	1.38	80	50	93
57L	2.77	90	60	102
63L	3.44	100	75	116
75L	2.35	100	80	108

Spherical Nut, 55 ° **L2044**



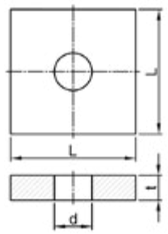
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
16L	0.12	27	33	35
20L	0.30	36	41	49
25L	0.37	41	45	55
28L	0.47	41	54	62
32L	0.64	46	57	70
40L	1.33	60	70	88
50L	2.68	80	85	107
57L	3.84	90	100	120
63L	6.37	100	115	144
75L	8.86	120	120	163

Steel Plate with Additional Reinforcement **L2138**



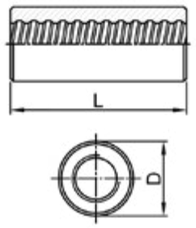
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
16L	0.26	55	12	20
20L	0.52	70	15	25
25L	0.89	80	20	30
28L	1.14	90	20	33
32L	1.74	100	25	38
40L	3.27	125	30	47
50L	5.87	155	35	58
57L	9.13	180	40	65
63L	12.69	200	45	72
75L	20.33	230	55	86

Steel Plate without Additional Reinforcement **L2139**



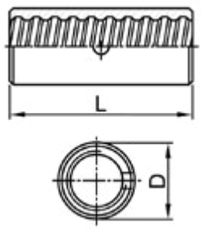
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
16L	0.31	60	12	20
20L	0.70	80	15	25
25L	1.16	90	20	30
28L	1.79	100	25	33
32L	2.15	110	25	38
40L	4.91	140	35	47
50L	8.79	175	40	58
57L	12.96	200	45	65
63L	17.40	220	50	72
75L	29.10	260	60	86

Coupler **L3003**



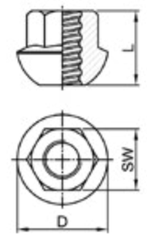
Ø [mm]	Weight [kg]	L [mm]	D [mm]
16L	0.39	90	32
20L	0.52	105	36
25L	0.60	115	40
28L	0.84	125	45
32L	1.24	140	52
40L	2.31	160	65
50L	4.28	200	80
57L	9.43	230	100
63L	9.33	260	102
75L	8.67	240	108

Contact Coupler **L3006**



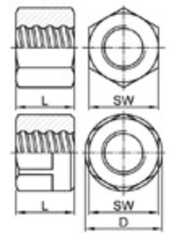
Ø [mm]	Weight [kg]	L [mm]	D [mm]
16L	0.17	65	27
20L	0.24	70	32
25L	0.28	80	36
28L	0.36	85	40
32L	0.46	90	45
40L	0.78	120	54
50L	1.05	160	63
57L	3.39	170	83
63L	4.43	200	90
75L	5.42	210	102

Spherical Nut 55° **R2001**



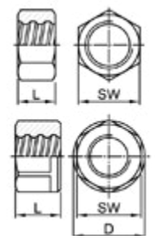
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
18R	0.19	32	35	43
22R	0.32	36	45	53
25R	0.46	41	50	60
28R	0.64	46	55	67
30R	0.79	50	60	71
35R	1.34	60	70	83
43R	2.29	70	85	102
50R	3.44	80	100	116
57R	5.67	90	115	137
63R	7.5	100	125	151
75R	11.97	120	150	174

Hexagonal Nut **R2002**



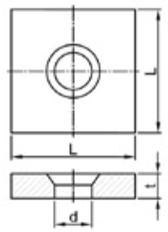
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
18R	0.29	36	45	-
22R	0.40	41	50	-
25R	0.55	46	55	-
28R	0.69	50	60	-
30R	0.92	55	65	-
35R	1.40	65	70	-
43R	2.74	80	90	-
50R	2.64	80	100	-
57R	4.26	90	120	102
63R	4.42	100	110	108
75R	3.92	100	130	108

Lock Nut, Long **R2003**



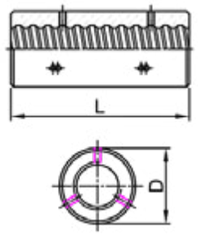
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
18R	0.15	30	40	-
22R	0.24	36	45	
25R	0.36	41	50	
28R	0.48	46	55	-
30R	0.63	50	60	
35R	0.77	55	65	-
43R	1.62	70	80	
50R	2.38	80	90	-
57R	3.42	90	100	102
63R	5.04	100	115	114
75R	3.58	100	120	108

Plate for Spherical. Nut **R2011**



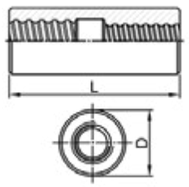
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
18R	1.83	100	25	27
22R	2.62	110	30	32
25R	2.83	125	30	35
28R	3.92	135	30	40
30R	3.89	145	30	40
35R	5.54	150	35	47
43R	10.20	180	45	58
50R	13.75	200	50	70
57R	20.17	230	55	75
63R	25.72	250	60	82
75R	40.61	290	70	100

Coupler with Set Screws **R3020**



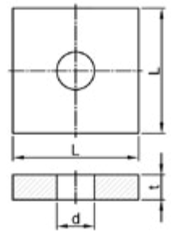
Ø [mm]	Weight [kg]	D [mm]	L [mm]
18R	0,55	36	100
22R	0,69	40	110
25R	0,95	45	120
28R	1,36	50	140
30R	1,81	55	150
35R	2,92	65	170
43R	5,27	80	200
50R	6,87	90	210
57R	10,35	102	250
63R	15,67	114	300
75R	8,68	108	260

Reducing Coupler **R3102**



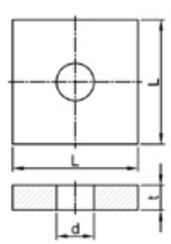
Ø [mm]	Weight [kg]	D [mm]	L [mm]
18R	-	-	-
22R	0.84	40	135
25R	1.26	45	155
28R	1.63	50	165
30R	2.15	55	175
35R	2.57	60	185
43R	5.51	80	200
50R	7.63	85	270
57R	10.98	100	270
63R	15.24	110	315
75R	11.91	110	300

Steel Plate with Additional Reinforcement **R2138**



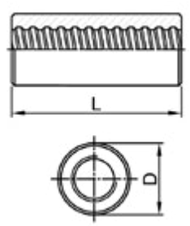
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
18R	-	-	-	-
22R	0.91	80	20	27
25R	1.16	90	20	30
28R	1.78	100	25	34
30R	2.17	110	25	36
35R	3.35	125	30	42
43R	5.64	150	35	50
50R	8.73	175	40	60
57R	12.88	200	45	67
63R	17.31	220	50	74
75R	31.53	260	65	86

Steel Plate without Additional Reinforcement **R2139**



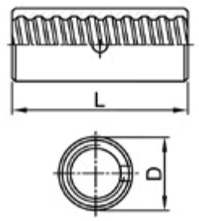
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
18R	-	-	-	-
22R	1.18	90	20	27
25R	1.82	100	25	30
28R	2.20	110	25	34
30R	2.63	120	25	36
35R	4.29	140	30	42
43R	7.40	170	35	50
50R	13.13	200	45	60
57R	19.38	230	50	67
63R	24.06	245	55	74
75R	43.02	290	70	86

Coupler **R3003**



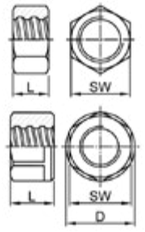
Ø [mm]	Weight [kg]	D [mm]	L [mm]
18R	0.56	36	100
22R	0.70	40	110
25R	0.95	45	120
28R	1.38	50	140
30R	1.82	55	150
35R	2.94	65	170
43R	5.28	80	200
50R	6.90	90	210
57R	10.39	102	250
63R	15.70	114	300
75R	8.69	108	260

Contact Coupler **R3006**



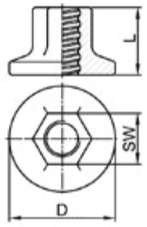
Ø [mm]	Weight [kg]	D [mm]	L [mm]
18R	0.15	27	70
22R	0.21	32	75
25R	0.43	40	80
28R	0.62	45	90
30R	0.54	45	90
35R	0.80	50	120
43R	2.09	65	160
50R	2.24	70	170
57R	3.59	83	180
63R	4.45	90	200
75R	5.95	102	230

Lock Nut, Short **R2040**



Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
18R	0.08	30	22	-
22R	0.12	36	22	-
25R	0.16	41	22	-
28R	0.26	46	30	-
30R	0.32	50	30	-
35R	0.47	55	40	-
43R	1.01	70	50	-
50R	1.32	80	50	-
57R	2.03	90	60	102
63R	2.98	100	70	114
75R	2.37	100	80	108

Anchor Piece **R2073**



Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
18R	0.28	32	35	55
22R	0.42	36	45	65
25R	0.67	41	50	75
28R	0.90	46	55	85
30R	1.10	50	60	90
35R	1.82	60	70	105
43R	2.95	70	85	130
50R	4.64	80	100	150
57R	7.41	90	115	175
63R	9.36	100	125	190
75R	16.81	120	150	230

4 Threaded Bars

Threaded Bars Micropile

Corrosion Protection of Micropiles

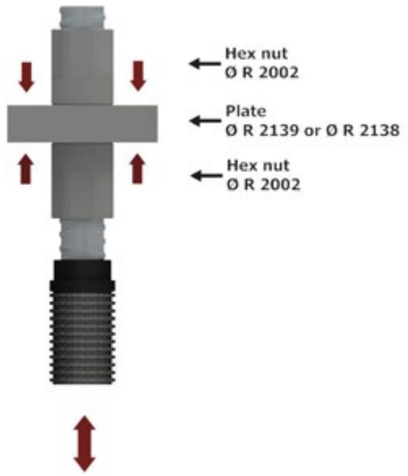
In general, the thread bars in the center of the micropile is covered by a layer of cement mortar that passivates the steel surface, provided crack widths are limited and there is an absence of spalling of cover of cement mortar in service. Minimum cover of cement mortar for micropiles is 20 mm on the thread bar. Corrosion protection of the anchorage at the pile head is by concrete of the foundation.

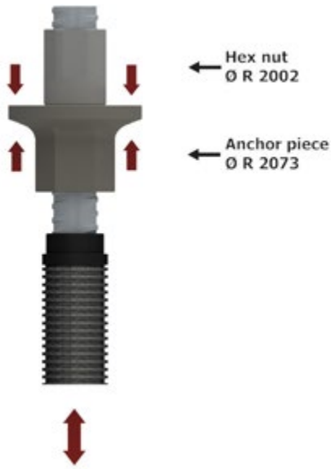
1. Temporary micropile (lifetime less than 2 years, depending on the rate of corrosion)
Temporary micropiles are protected against corrosion by at least 20 mm thick cover of cement mortar on the thread bar. The minimum cover of cement mortar is ≥ 15 mm. The thickness of the cement mortar is ensured by spacers, spacing ≤ 3,0 m. The pile neck at the area of the joint ground to foundation is protected.

2. Semi-Permanent Micropile (lifetime 2 - 50 years, depending on the rate of corrosion)
For cover of cement mortar on the thread bar is applied similar rules as for Temporary micropiles. To ensure the intended working life of the pile foundation the following procedures are applied. Definition of corrosion rates for sacrificial corrosion dependent on the ground conditions for bare thread bars, disregarding the system-inherent encapsulation by a body of cement mortar. Definition of corrosion rates for sacrificial corrosion dependent on the ground conditions for hot deep galvanized thread bars, disregarding the system-inherent encapsulation by a body of cement mortar. The applied thickness of the zinc coating usually is ≥ 150 µm. If zinc coating of a smaller thickness is applied, this is taken into consideration for determining the losses in cross sectional area. The pile neck at the area of the joint ground to foundation is protected.

3. Permanent Micropile with standard corrosion protection - Cement grout cover (lifetime up to 100 years)
Standard corrosion protection – is achieved by encapsulation with a body of cement mortar. Dependent on the exposure classes according to EN 206, the required cover of cement mortar is defined based on relevant geotechnical standards. The crack widths under tensile load are thereby limited to ≤ 0,2 mm.

4. Permanent micropile with double corrosion protection - DCP acc. to EN 1537 (lifetime up to 100 years)
Double corrosion protection – DCP, permanent micropile according to EN 1537 – are protected against corrosion with a corrugated plastic sheeting with thickness ≥ 1 mm and inner cement grout layer at least 5 mm between thread bar and corrugated plastic sheathing.
The thread bar is centered in the corrugated plastic sheathing with a plastic cord or plastic spacer. Grouting of the corrugated plastic sheathing is carried out at the manufacturing plant according to defined operating procedures.





Double Corrosion Protection System

DCP - micropiles are fully cement grouted bars. Full corrosion protection is achieved by complete HDPE or PVC encapsulation of the bar and by encasing the anchorage (if required). In addition, the cement grout fulfils a chemically active protective function.

DCP system consists of:
- Ostrava Thread Bar (OTB)
- Internal spacers fixed to the OTB to centralize it in the HDPE sheathing
- Inner cement grout
- HDPE or PVC corrugated sheathing
- External spacers fixed to the external sheathing to ensure a minimum of 10 mm grout
- External grout and vent tubes
- Grout

Coupling
The coupling system is used to couple lengths of bar. In case of tensioning or compression/tension, the couplers should be torqued with lock nuts to eliminate slip between bar and coupler and so to avoid big cracks and movement.

The coupling consists of:
- OTB Bar
- Coupler with lock nuts
- Corrosion protection of the coupler (heat shrink sleeve)

Quality Assurance
Nová Huť Ostrava a.s. is certified according to ISO 9001: 2016. In addition, the internal control procedures are ensuring via nondestructive and destructive testing the integrity of all the system components.

Handling and site transport
- Care should be taken when transporting the piles to the fabrication yard and from the yard to the borehole.
- The piles should be adequately supported (bracing or support at a maximum distance of 1,5 – 3,0 m depending on diameter of bar) so as not to damage the pre-grouting. (To avoid bending the bar by lifting it, check carefully and if necessary, reduce distance of support)
- During transport, the piles should be laid flat on suitable transport and with supports between the layers of piles. Care should be taken not to knock the piles to avoid that the pre-grouting cracks.
- The piles can be lifted and transported by crane with a brace or lifting device on the air-sided end of the bar (ring nut etc.). Take care that by lifting the bar does not bend too much and the end does not slip on the ground.

Execution of Micropiles

Drilling

A suitable drilling method shall be chosen considering:

- the ground conditions
- the equipment that the drilling contractor currently uses and proposes suitable

Minimum drill hole diameter

Required drill hole diameter for Single Corrosion protected (SCP) and Double Corrosion protected (DCP) micropiles depends on the ground conditions and drilling equipment setup.

Drilling Method:

- The drilling method shall be chosen to cause the minimum ground modification and disturbance possible and to allow the designed pile resistance to be mobilized.
- Prevent collapse of the borehole wall during drilling and installation of pile. The boreholes shall be cased, unless it is demonstrated on site that the uncased boreholes are stable and that no earth can break off into the borehole when the pile is inserted.
- Minimize loosening of the surrounding ground
- Minimize softening of the borehole walls in cohesive soils and degradable rocks
- Drilling fluid chosen shall have no adverse effect on the micropile.

Installation:

The micro pile should be installed as soon as possible after drilling to minimize the risk of hole collapse and redrilling requirements. The borehole length should be checked upon completion and should not be shorter than required.

Homing of the micropile:

- Once the borehole has been drilled to the appropriate diameter and thoroughly flushed, commence installing the pile immediately.
- Prepare the necessary pile pieces ready by the borehole (if more than one piece). The pieces should be well protected
  and supported off the ground to avoid dirt and damage. Care should be taken that drilling rigs or other site equipment do not pass near the anchor pieces and cause possible damage.
- Slowly lift the micro pile and take it into the borehole.
- Make sure that the corrugated sheathing does not drag at the relatively sharp edges of the flange.
- Introduce the lower end (at the end cap end) slowly into the hole until the cleaned end is at the borehole mouth.
- Screw the coupler and lock nuts on by taking care that exactly 50 % of the coupler is screwed on the bar. If it is only a compression pile, a contact coupler without any locknut can be used. Paint marks previously put on the bar will help with this phase.
- Holding the coupler and lower anchor piece firmly in place, screw the next piece of bar in place. Ensure that coupler is equally placed over the two bar pieces and does not rotate during the screwing operation.
- Tighten the coupler and bars together and torque the lock nuts
- The coupler shall be protected with heat shrink sleeve.
- Pursuant to norms the hollow space between the grout and splice shall be completely grouted with the plastic sealing tape “Densoplast” on both sides of the splice, before the heat shrink sleeve is shrunk on.

Grouting of the micropiles

- The original materials for the cement grout are cement and mixing water as specified by EN 14199
- The water/cement ratio should be max 0,55. In cohesive soils the lowest possible ratio shall be chosen. The cement grout must be mixed mechanically and must not segregate and lump before it is injected.
- Grout injection should be carried out as soon as possible after the micropile installation.
- Fill the boreholes with cement grout from the ground end via the drill casings or grout tubes.

Technical Specification

Mechanical properties for 550/620:
Strength: $R_{e,nom}$ = 550 MPa; $R_{m,nom}$ = 620 MPa
Elongation: A_{gtmin} = 5%

Mechanical properties for 670/800:
Strength: $R_{e,nom}$ = 670 MPa; $R_{m,nom}$ = 800 MPa
Elongation: A_{gt} = 5%

Delivery Statement:
Hot rolled bar with right-handed and left-handed thread ribs.

Weldability:
For structural welding, specific procedures for high carbon steel must be respected.

Application:
Tightened coupling splices and anchorages
Length: standard 12 m - 15 m - 0 / + 0.3 m, other lengths upon agreement with supplier.Density: 7.85 kg/dm^3

Inspection:
Mill certificate 3.1 according to EN 10204.

Ostrava Thread Bars 670/800, Right-hand Thread

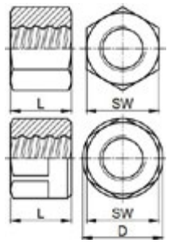
OTB 670/800								
Nominal Diameter d [mm]	Outer Diameter d_s [mm]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Yield Strength[1),2)] $R_{e,nom}$ [MPa]	Tensile Strength[1)] $R_{m,nom}$ [MPa]	Elongation A_{gt} [%]	Nominal Cross section A [mm^2]	Weight [kg/m]
22	24.2	255	304	670	800	5	380	2.98
25	27.5	329	393	670	800	5	491	3.85
28	31.2	413	493	670	800	5	616	4.84
30	33.5	474	566	670	800	5	707	5.55
35	39.2	645	770	670	800	5	962	7.55
43	47.9	973	1162	670	800	5	1452	11.40
50	54.6	1315	1570	670	800	5	1963	15.41
57.5	62.8	1740	2078	670	800	5	2597	20.39
63.5	69.0	2122	2534	670	800	5	3167	24.86
75	81.5	2960	3534	670	800	5	4418	34.68

Ostrava Thread Bars 550/620, Left-hand Thread

OTB 550/620								
Nominal Diameter d [mm]	Outer Diameter d_s [mm]	Yield Load $F_{e,nom}$ [kN]	Ultimate Load $F_{m,nom}$ [kN]	Yield Strength[1),2)] $R_{e,nom}$ [MPa]	Tensile Strength[1)] $R_{m,nom}$ [MPa]	Elongation A_{gt} [%]	Nominal Cross section A [mm^2]	Weight [kg/m]
25	27.9	270	304	550	620	5	491	3.85
28	31.2	339	382	550	620	5	616	4.83
32	35.7	442	499	550	620	5	804	6.31
40	44.6	691	779	550	620	5	1257	9.87
50	55.6	1080	1217	550	620	5	1963	15.41
57.5	62.8	1428	1610	550	620	5	2597	20.39
63.5	69.0	1742	1963	550	620	5	3167	24.86
75	81.5	2430	2739	550	620	5	4418	34.68

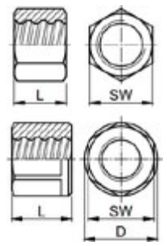
1) 5%-fractile
2) Yield strength R_e corresponds to $R_{p0,2}$, 0.2% proof strength

Hexagonal Nut **R2002**



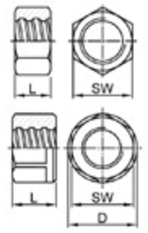
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
22R	0.40	41	50	-
25R	0.55	46	55	-
28R	0.69	50	60	-
30R	0.92	55	65	-
35R	1.40	65	70	-
43R	2.74	80	90	-
50R	2.64	80	100	-
57R	4.26	90	120	102
63R	4.42	100	110	108
75R	3.92	100	130	108

Lock Nut, Long **R2003**



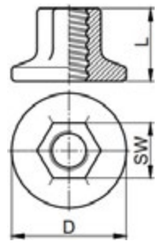
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
22R	0.24	36	45	-
25R	0.36	41	50	-
28R	0.48	46	55	-
30R	0.63	50	60	-
35R	0.77	55	65	-
43R	1.62	70	80	-
50R	2.38	80	90	-
57R	3.42	90	100	102
63R	5.04	100	115	114
75R	3.58	100	120	108

Lock Nut, Short **R2040**



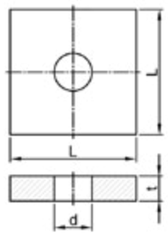
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
22R	0.12	36	22	-
25R	0.16	41	22	-
28R	0.26	46	30	-
30R	0.32	50	30	-
35R	0.47	55	40	-
43R	1.01	70	50	-
50R	1.32	80	50	-
57R	2.03	90	60	102
63R	2.98	100	70	114
75R	2.37	100	80	108

Anchor Piece **R2073**



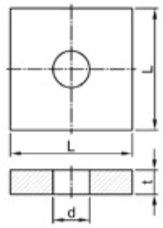
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
22R	0.43	36	45	65
25R	0.67	41	50	75
28R	0.90	46	55	85
30R	1.10	50	60	90
35R	1.82	60	70	105
43R	2.95	70	85	130
50R	4.64	80	100	150
57R	7.41	90	115	175
63R	9.36	100	125	190
75R	16.81	120	150	230

Steel Plate with Additional Reinforcement **R2138**



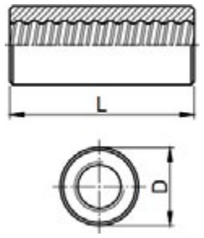
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
22R	0.91	80	20	27
25R	1.16	90	20	30
28R	1.78	100	25	34
30R	2.17	110	25	36
35R	3.35	125	30	42
43R	5.64	150	35	50
50R	8.73	175	40	60
57R	12.88	200	45	67
63R	17.31	220	50	74
75R	31.53	260	65	86

Steel Plate without Additional Reinforcement **R2139**



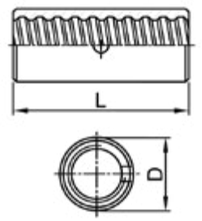
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
22R	1.18	90	20	27
25R	1.82	100	25	30
28R	2.20	110	25	34
30R	2.63	120	25	36
35R	4.29	140	30	42
43R	7.40	170	35	50
50R	13.13	200	45	60
57R	19.38	230	50	67
63R	24.06	245	55	74
75R	43.02	290	70	86

Coupler **R3003**



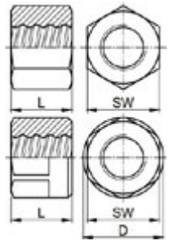
Ø [mm]	Weight [kg]	D [mm]	L [mm]
22R	0.70	40	110
25R	0.95	45	120
28R	1.38	50	140
30R	1.82	55	150
35R	2.94	65	170
43R	5.28	80	200
50R	6.90	90	210
57R	10.39	102	250
63R	15.70	114	300
75R	8.69	108	260

Contact Coupler **R3006**



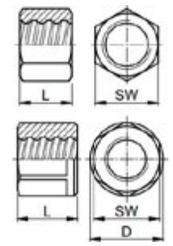
Ø [mm]	Weight [kg]	D [mm]	L [mm]
22R	0.21	32	75
25R	0.43	40	80
28R	0.62	45	90
30R	0.54	45	90
35R	0.80	50	120
43R	2.09	65	160
50R	2.24	70	170
57R	3.59	83	180
63R	4.45	90	200
75R	5.95	102	230

Hexagonal Nut **L2002**



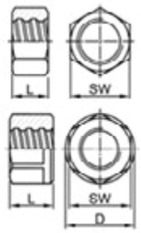
Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
25L	0.34	41	50	-
28L	0.48	46	55	-
32L	0.79	55	60	-
40L	1.20	65	70	-
50L	2.17	80	85	-
57L	3.42	90	100	102
63L	6.15	100	135	114
75L	3.00	100	100	108

Lock Nut, Long **L2003**

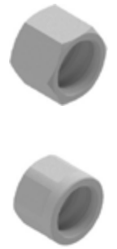


Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
25L	0.16	41	40	-
28L	0.28	41	45	-
32L	0.48	50	50	-
40L	0.84	60	65	-
50L	2.04	80	80	80
57L	2.03	90	80	102
63L	3.43	90	115	102
75L	2.34	100	80	108

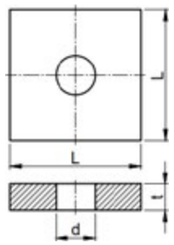
Lock Nut, Short **L2040**



Ø [mm]	Weight [kg]	SW [mm]	L [mm]	D [mm]
25L	0.14	41	20	-
28L	0.15	41	25	-
32L	0.31	50	30	58
40L	0.50	60	35	70
50L	1.38	80	50	93
57L	2.77	90	60	102
63L	3.44	100	75	116
75L	2.35	100	80	108

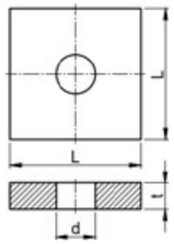


Steel Plate with Additional Reinforcement **L2138**



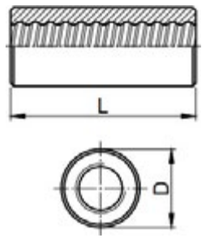
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
25L	0.89	80	20	30
28L	1.14	90	20	33
32L	1.74	100	25	38
40L	3.27	125	30	47
50L	5.87	155	35	58
57L	9.13	180	40	65
63L	12.69	200	45	72
75L	20.33	230	55	86

Steel Plate without Additional Reinforcement **L2139**



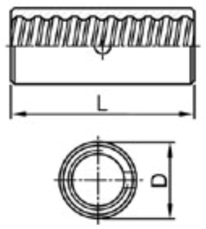
Ø [mm]	Weight [kg]	L [mm]	t [mm]	d [mm]
25L	1.16	90	20	30
28L	1.79	100	25	33
32L	2.15	110	25	38
40L	4.91	140	35	47
50L	8.79	175	40	58
57L	12.96	200	45	65
63L	17.40	220	50	72
75L	29.10	260	60	86

Coupler **L3003**



Ø [mm]	Weight [kg]	D [mm]	L [mm]
25L	0.60	40	115
28L	0.84	45	125
32L	1.24	52	140
40L	2.31	65	160
50L	4.28	80	200
57L	9.43	100	230
63L	9.33	102	260
75L	8.67	108	240

Contact Coupler **L3006**



Ø [mm]	Weight [kg]	D [mm]	L [mm]
25L	0.28	36	80
28L	0.36	40	85
32L	0.46	45	90
40L	0.78	54	120
50L	1.05	63	160
57L	3.39	83	170
63L	4.43	90	200
75L	5.42	102	210

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