

RAEX® 300, RAEX® 400, RAEX® 450 AND RAEX® 500 ABRASION-RESISTANT STEELS

RELIABLE QUALITY

Trouble free production.
Cost efficiency.
Performance in all typical wear applications.

AVAILABILITY

Good availability.
Short delivery times.
Less capital in stocks/WIP.

COMPLETE PRODUCT RANGE

One source for all wear demands.
Optimal product for different abrasive needs.

SAFETY AT WORK

The safety instruction must be adhered to in detail in all workshop processing of wear resistant steels.

MECHANICAL PROPERTIES

Product	Available thickness (mm)	Hardness HBW	Typical yield strength MPa	Typical tensile strength MPa	Typical elongation %	Typical impact strength in -40°C, J
Raex 300	2-8	270-390	900	1000	11	30
Raex 400	2-80	360-440	1100	1250	10	30
Raex 450	2-80	420-500	1200	1450	9	30
Raex 500	2.5-80	470-540	1300	1600	8	30

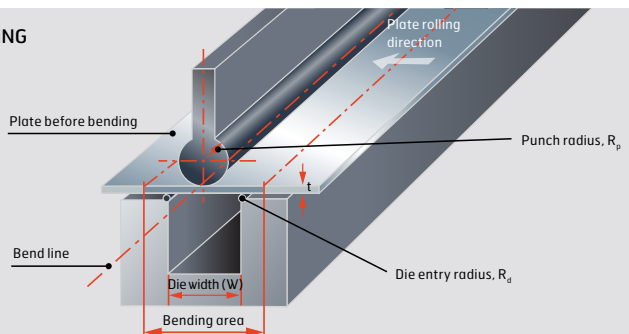
BENDING. MINIMUM BEND RADIUS R, BEND ANGLE ≤90°, THICKNESS t ≤20 mm

Raex grade	Product form	R/t minimum transverse	R/t minimum longitudinal	Die opening width W/t minimum
Raex 300	Sheet	3	3	12
Raex 400	Sheet	3	4	12
	Plate	3	4	14
Raex 450	Sheet	3	4	12
	Plate	4	5	14
Raex 500	Sheet	3.5	4	14
	Plate	5	6	14

ESTIMATION OF BENDING FORCE IN FLANGING

$$P = \frac{b \cdot t^2 \cdot R_m}{(W - R_d - R_p) \cdot 9800}$$

P = Bend force, metric tons
t = Plate thickness, mm
W = Die width, mm
b = Bend length, mm
R_m = Tensile strength, MPa
R_d = Die entry radius, mm
R_p = Punch radius, mm



UNDERMATCHING (Re~500 MPa) FERRITIC CONSUMABLES, HD≤5 ml/100 g

Welding method	AWS Classification	EN Classification
MAG, solid wire	AWS A5.18 ER70X-X AWS A5.28 ER80X-X	EN ISO 14341-A- G 38xxxxxx EN ISO 14341-A- G 42xxxxxx
MAG, metal-cored wire	AWS A5.18 E7XC-X AWS A5.28 E8XC-X	EN ISO 17632-A- T 42xxxxH5 EN ISO 17632-A- T 46xxxxH5
MAG, flux-cored wire	AWS A5.29 E7XT-X AWS A5.29 E8XT-X AWS A5.20 E7XT-X	EN ISO 17632 -A- T 42xxxxH5 EN ISO 17632 -A- T 46xxxxH5
MMA, stick electrode	AWS A5.5 E70X AWS A5.5 E80X AWS A5.1 E70X	EN ISO 2560-A- E 42xxxxxH5 EN ISO 2560-A- E 46xxxxxH5

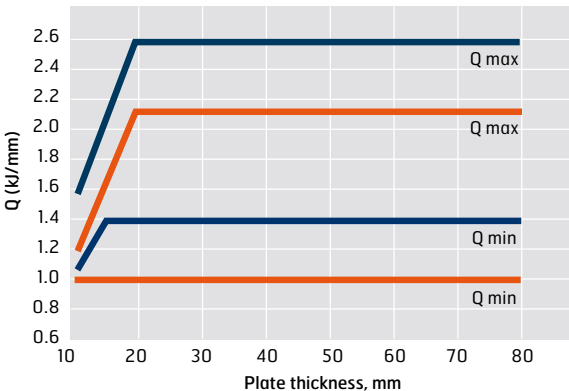
Note: the letter "X" stands for one or more characters.

WELDING. RECOMMENDED WORKING TEMPERATURE, °C

Steel grade	Plate thickness, mm									
	10	20	30	40	50	60	70	80		
Raex 400	+20		+75	+100	+125	+150	+175			
Raex 450	+20	+75	+100	+125	+150	+175		+200		
Raex 500	+20	+100	+125	+150	+175	+200				

NOTE: Working temperature or interpass temperature higher than +220°C may not be used.

HEAT INPUT (Q) RECOMMENDATION, ARC WELDING



- Butt weld
- Fillet weld in T joint

$$Q = \frac{k \times 60 \times U \times I}{1000 \times v}$$

Q = Heat input (kJ/mm)
 k = Thermal efficiency
 k = 0.8 for MAG, FCAW and MMA
 k = 1.0 for SAW
 U = Voltage (V), I = Current (A)
 v = Welding speed (mm/min)

FLAME CUTTING. RECOMMENDED WORKING TEMPERATURE, °C

Steel grade	Plate thickness, mm									
	10	20	30	40	50	60	70	80		
Raex 400	+20			+100	+125	+150				
Raex 450	+20			+125	+150					
Raex 500	+20	+125	+150	+175						

NOTE: Preheating can be avoided by reducing the cutting speed and by choosing nozzles and other cutting equipment correspondingly.