



AMPT[®]
SINCE 1945



LOCOMOTIVE

SPARE PARTS PRODUCER

AMP is:



**HELPFUL ACCOUNT
MANAGERS**



**REPRESENTATIVES
AROUND THE WORLD**



**ECOLOGICAL
TECHNOLOGIES**



ATTRACTIVE PRICES



**OVER 70 YEARS
OF HISTORY**



**TECHNICAL
SUPPORT**



**2 PRODUCTION
PLANTS**



**QUALITY
CERTIFICATES**



**EXPERIENCED
PERSONNEL**



**OVER 2 MILLION
VALVES ANNUALLY**



COMPETENT AND EXPERIENCED STAFF



ECOLOGICAL PRODUCTION SOLUTIONS



ATTRACTIVE PRICES



INDIVIDUAL APPROACH



WIDE RANGE OF PRODUCTS



ISO 9001: 2015 QUALITY SYSTEM



OVER 70 YEARS OF BUSINESS



WARSAW PRODUCTION PLANT AND SALES OFFICE



PRODUCTION PLANT IN KUNOW



STATE-OF-THE-ART TECHNOLOGIES



SPECIAL ORDER PRODUCTION





OVER 30 SKUS

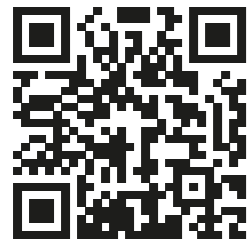


SPECIAL ORDER PRODUCTION
AGAINST CUSTOMERS'
TECHNICAL DATA



FLEXIBLE APPROACH
AND ADAPTATION TO
CUSTOMER NEEDS

Check the
details on
our website



T448p



S200
(T669/770 CD)



SM42 (6D)



ST44 (M62)



OVER 30 SKUS

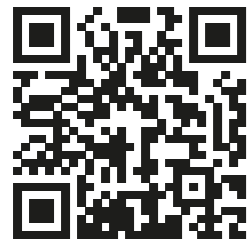


SPECIAL ORDER PRODUCTION
AGAINST CUSTOMERS'
TECHNICAL DATA



FLEXIBLE APPROACH
AND ADAPTATION TO
CUSTOMER NEEDS

Check the
details on
our website



SU45



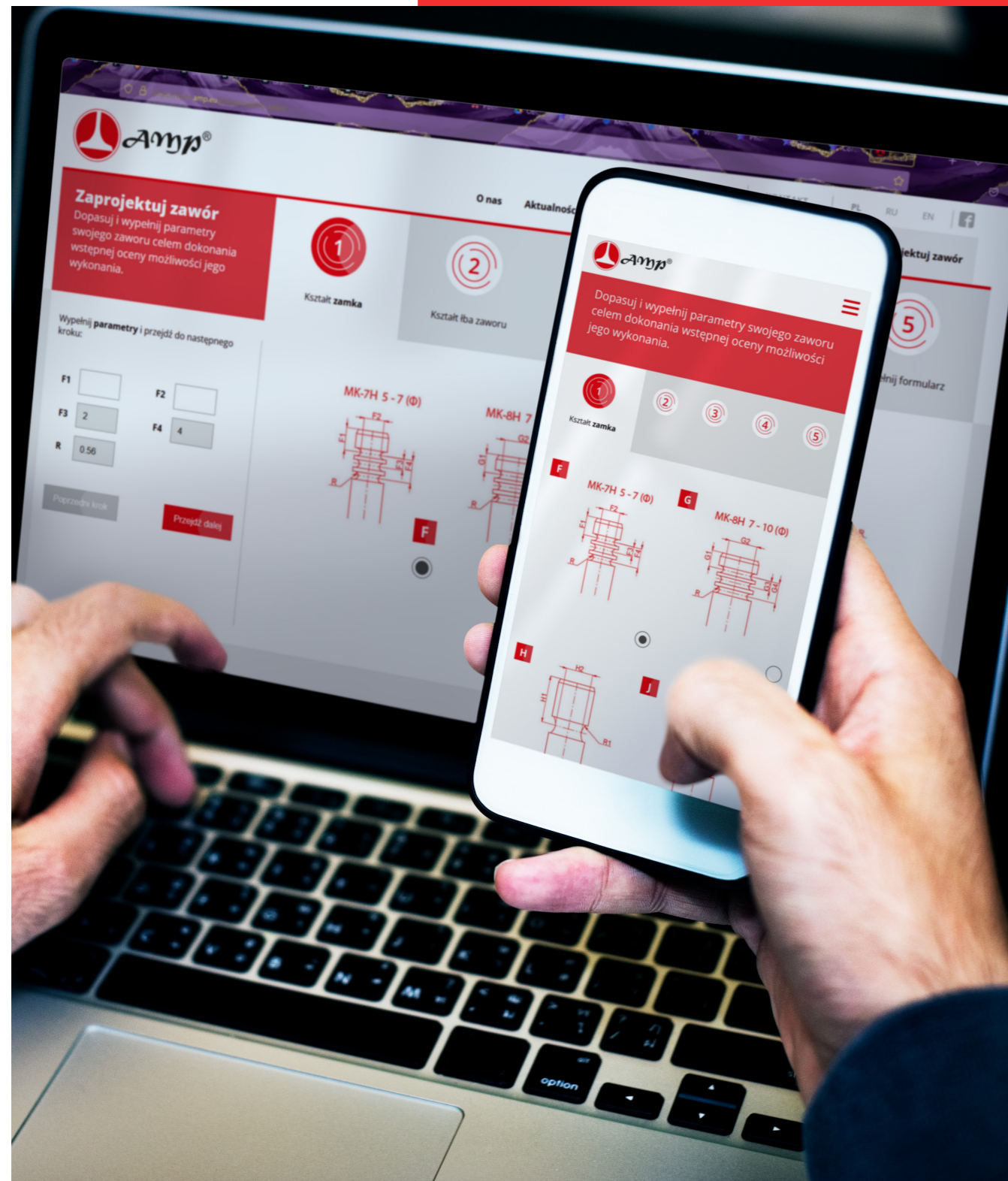
BR231/232
(TE109)



ST43
(060DA)



SM48 (TEM2)



VALVES ON A SPECIAL ORDER



REALIZATION AGAINST THE PROVIDED SAMPLE OR TECHNICAL DRAWING



PRODUCT CUSTOMIZATION



DEVELOPING NON-STANDARD SOLUTIONS

Check the details on our website



MATERIALS AND TECHNOLOGIES

CHEMICAL COMPOSITION OF VALVE STEEL

STEEL GRADE	MAIN CHEMICAL COMPONENTS IN%								
	C	Si	Mn	Pmax	Smax	Cr	Mo	Ni	others
X45Cr5i9-3 1.4718 (H952)	0,4 0,5	2,7 3,3	max 0,6	0,04	0,03	8,0 10,0	-	max 0,5	-
X40Cr5iMo10-2 1.4731 (H1052M)	0,35 0,45	2,0 3,0	max 0,8	0,04	0,03	9,5 11,5	0,8 1,3	max 0,5	-
X53CrMnNiN21-9 1.4871 (50H21G9N4)	0,48 0,58	max 0,25	8,0 10,0	0,045	0,03	20,0 22,0	-	3,25 4,3	-
X50CrMnNiNbN21-9 1.4882	0,45 0,55	max 0,45	8,0 10,0	0,045	0,03	20,0 22,0	-	3,5 5,5	W: 0,8 - 150 N bTa: 1,8 - 2,504
NiCr20TiA 2.4952 (NIMONIC 80A)	0,04 0,1	max 1,0	max 1,0	0,02	0,015	18,0 21,0	-	min 65,0	ON: 0,40 - 0,60 Fe: max 3,00 Cu: max 0,20 Co: max 2,00 B: max 0,008 Al: 1,00 - 1,80 Ti: 1,80 - 2,70

MATERIALS AND TECHNOLOGIES

CHARACTERISTICS AND APPLICATION OF VALVE STEEL

STEEL GRADE	STRENGTH PROPERTIES				STEEL STRUCTURE	STEEL APPLICATION
	Rm [N/nm ²]	Rm [N/nm ²]	A5 [%]	Z [%]		
X45Cr5i9-3	900 - 1100	min. 799	14	40	sorbitan + carbons	intake valves for light-duty engines
X40Cr5iMo10-2	900 - 1100	min. 700	14	40	sorbitan + carbons	intake and exhaust valves for medium-duty engines
X53CrMnNiN21-9	950 - 1200	min. 580	8	10	austenitic + carbons	mainly exhaust valves for heavy-duty engines
X50CrMnNiNbN21-9	950 - 1150	min. 580	12	15	austenitic + carbons	mainly exhaust valves for heavy-duty engines
NiCr20TiA	1100 - 1400	min. 725	15	25	austenitic + carbons	mainly exhaust valves for heavy-duty engines

MATERIALS AND TECHNOLOGIES

DIMENSIONS

HEAD	Ø max. 105 mm
STEM	Ø max. 26 mm
LENGTH	L max. 40 mm



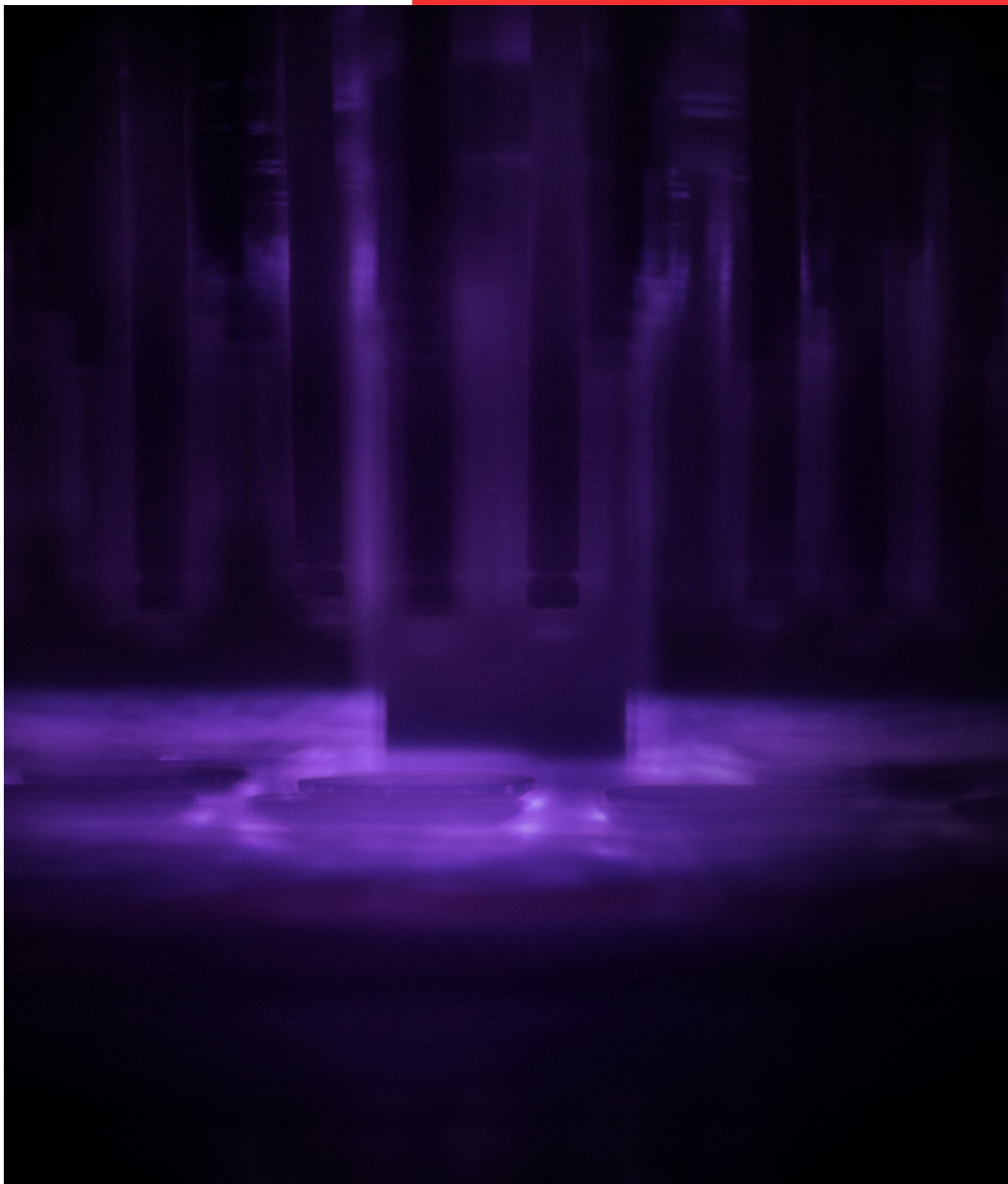
BEST MATERIALS



WIDE RANGE OF DIMENSIONS

CONTACT US AND WE WILL HELP YOU TO CHOOSE THE OPTIMUM MATERIAL!





IMPULSE ION NITRIDING



THE STATE-OF-THE-ART
METHOD OF PULSE ION
NITRATION



SIGNIFICANT INCREASE
OF VALVE DURABILITY



MACHINING AT LOW
TEMPERATURES AND
LOW PRESSURE



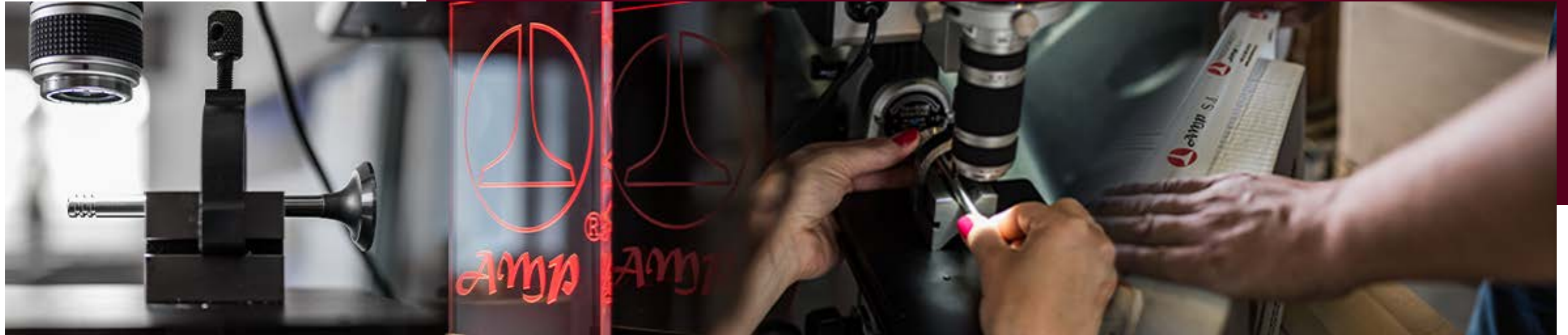
ABRASION AND
FLAT RESISTANCE



STRENGTHENING
THE MOST EXPOSED
SURFACES



ECO-FRIENDLY PROCESS



QUALITY CONTROL



**STATE-OF-THE-ART
MEASUREMENT APPARATUS**



**THE HIGHEST QUALITY
STANDARDS**



**RIGOROUS INSPECTION
PROCEDURES**



**SELF-CONTROL
PROCEDURES**



**HIGHLY QUALIFIED AND
EXPERIENCED PERSONNEL**



ALSO ASK ABOUT:



VALVE GUIDES



PISTON RINGS



PISTON PINS



OTHERS





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