



High-Quality Special Alloys
for Oil and Gas Industries
Made in Germany

Maximum Knowledge – Down to the Last Detail



Saarschmiede GmbH Freiformschmiede manufactures forgings for the highest demands in a particularly broad forging range in an abundance of different qualities and treatment conditions. As we can melt our alloys ourselves and have comprehensive possibilities for processing at our disposal, we are able to fulfill each customer's requirements individually. Whether for the rough environment

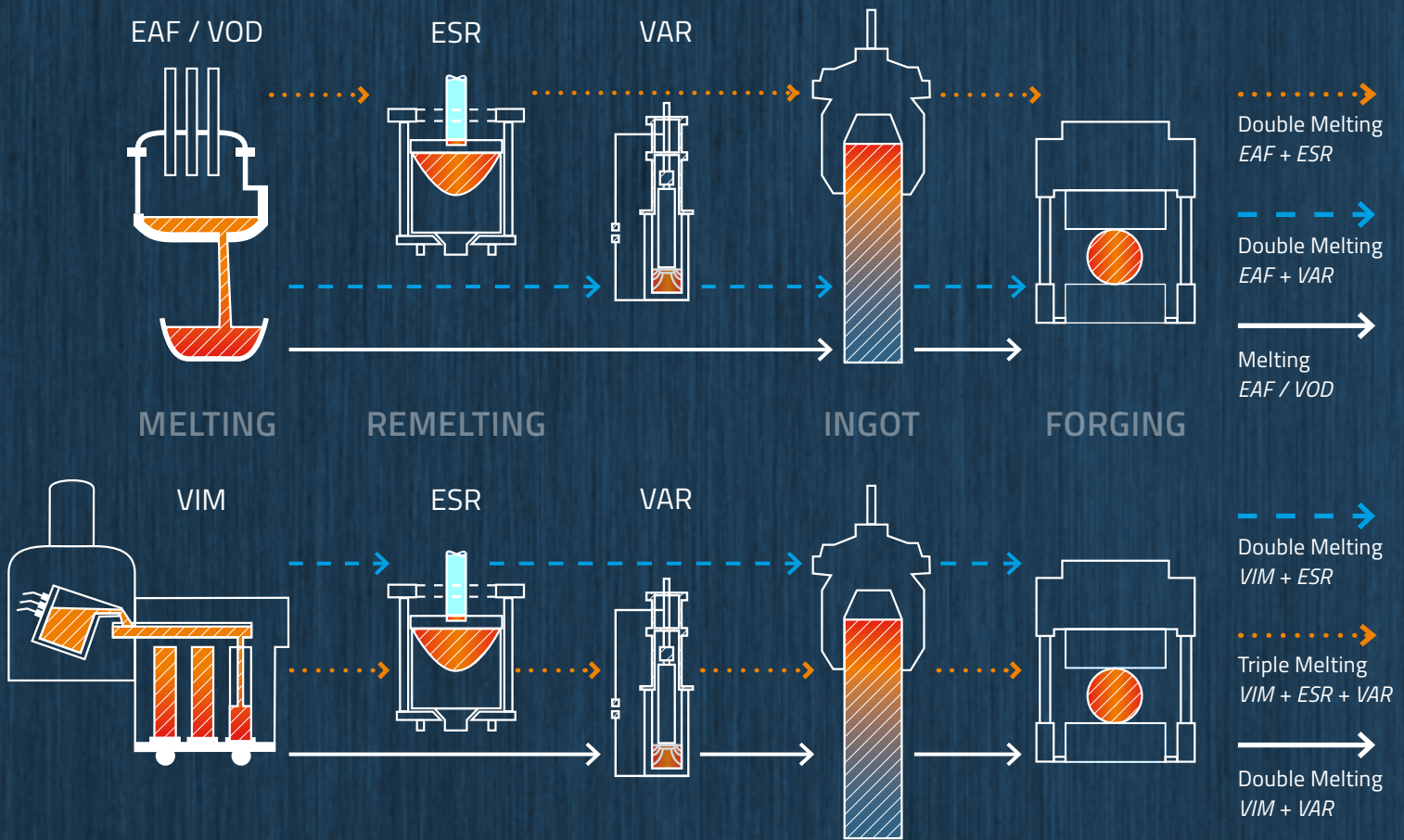
of the offshore industry or for safety-relevant components for refineries, with our range of alloys, we offer you optimum solutions for all of these applications. Our customers come from a wide range of industries, for instance power generation, chemical and petrochemical, aerospace, tool steel processing / mold making, offshore as well as marine and shipbuilding.



Our Daily Routine: Melting and Forging

Saarschmiede has the complete production line at its disposal – from melting, forging and heat treatment through to machining on CNC-controlled equipment. We thus have the ideal basis for controlled and reproducible quality, starting from the raw material and ending with the finished product.

The broad range of facilities and the processing techniques for producing various steel grades are outstanding. Additionally, we are constantly investing in our facilities, guaranteeing our customers state-of-the-art technology. VIM, VAR and ESR qualities as well as triple melting qualities form the basis of our cutting edge materials.



Our Melting Facilities

ELECTRO-SLAG REMELTING FACILITIES (ESR)

Ingot format sliding crucible	max. ø 94.5 in. min. ø 39.3 in.
Ingot format stationary crucible	max. ø 51.2 in. min. sq. 13.8 in.
Ingot weight	max. 485,017 lbs.
Year of construction / modernization	2010

ELECTRIC ARC FURNACE (EAF)

Primary extraction	approx. 3,531,466.7 ft ³ /h
Secondary extraction	approx. 2,118,880 ft ³ /h
Ingot weight max.	507,063 lbs.

VACUUM INDUCTION FURNACE (VIM)

Tap weight	17,637 lbs. or 35,274 lbs. (2 crucibles)
Melting performance	max. 3,000 kWh
Pressure	<0.000725 psi
Year of construction	2001

VACUUM ARC REMELTING FURNACES (VAR)

VL 2	max. ø 23.6 in.
Remelting weight	max. 12,125 lbs.
Year of construction	1992
Modernization of the steering	2009
VL 3	max. ø 50.2 in.
Remelting weight	max. 66,139 lbs.
Year of construction	2008

Special Facilities for Special Alloys

Today, Saarschmiede is one of the world's top suppliers of stainless steels and special alloys, such as nickel and cobalt-based alloys.

From ingots weighing between 4,409 lbs. and 66,138 lbs., we produce the smallest special alloys – processed to the narrowest tolerances – but also workpieces of impressive dimensions.

In addition to our current product line we can respond flexibly to all customer inquiries. Furthermore, the broad range of services we offer is supplemented by commissioned work.

The broad range of facilities and the different possibilities of our vacuum metallurgy allow us to manufacture materials that meet the highest demands.

FORMING FACILITIES		85-MN PRESS	120-MN PRESS
Type of construction		4 column underfloor press	4 column underfloor press
Drive system		oil-hydraulic	oil-hydraulic
Operating pressure max.		5,801.51 psi	6,091.58 psi
Press force stretching max.		75 MN	100 MN
Press force upsetting max.		85 MN	120 MN
Stroke		82.68 in.	118.11 in.
Clear opening	Height	236.22 in.	275.59 in.
	Width	133.86 in.	177.17 in.
Number of strokes		40 strokes/min	40 strokes/min
Furnaces max.		661,387 lbs.	881,849 lbs.
Manipulator		80 mt / 250 mt	200 mt / 500 mt and 100 mt / 250 mt
Crane capacity max.		529,109 lbs.	661,387 lbs.
Year of construction		2003	2010



Special Materials for Special Purposes

The various materials are processed to make bar material, discs, rings, hollow parts and pre-machined parts for dies. Our nickel and cobalt-based workpieces have to withstand particularly high temperatures and show a high degree of stability. Our stainless and special steels are used under ad-

verse conditions, which are characterized by high humidity, corrosion or strong abrasion, which is why special demands are placed on the resistance of the steels.

Due to the possibility of melting our own material, we also offer ingots and billets.

SUPER ALLOYS AND SPECIAL MATERIALS

GRADE	WDL (DIN)	AIR (AFNOR)	AMS (UNS)	DTD (BS)	DESIGNATION
SOFT MARTENSITIC STEELS					
1.4418	X4CrNiMo16-5-1	Z8CND17-04			
ACID-RESISTING STAINLESS STEELS					
1.4313	X5CrNiMo13-4		S41500		F6NM
1.4057	X17CrNi16-2	Z15CN16-02	S43100	431S29	
1.4306	X2CrNi19-11	Z3CN19-11	S30403	304S11	
1.4454			S21904		FXM-11
1.4006	X12Cr13	Z10C13 / Z13C13	S41000	410S21	
DUPLEX STEELS					
1.4462	X2CrNiMoN22-5-3	Z3CND 22-05Az	S31803	318S13	F51
1.4410	X2CrNiMoN25-7-4	Z3CND25.07Az	S32750		F53
PRECIPITATION-HARDENING STEELS (PH)					
1.4534	X3CrNiMoAl13-8-2	Z3CNDA13-08	5629	S13800	PH13-8Mo
1.4545	X5CrNiCu15-5	Z5CNU15	5659	S15500	15-5PH
1.4548	X5CrNiCuNb17-4-4	Z5CNU17	5622, 5643	S17400	17-4PH
1.4594	X5CrNiMoCuNb14-5		S45000	460S52	14-5PH
QT-STEELS					
1.7225	42CrMo4	40CD4	41420	708M40	4140
1.7218	25CrMo4		H41300		4130
1.6580	30CrNiMo8	30CND8	43400		
1.6582	34CrNiMo6	35NCD6	4337 (AISI)	817M40	
1.7380	10CrMo9-10	10CD910	K21590		F22
CREEP-RESISTANT ALLOYS					
2.4631/2.4952	NiCr20TiAl	NC20TA	N07080	HR1	80A
2.4632/2.4969	NiCr20Co18Ti	NCK20TA	N07090	HR2	90
2.4634	NiCo20Cr15MoAlTi	NK20CDA	N13021	HR3	105
2.4650	NiCo20Cr20MoTi	NCK20D	5886, 5872	HR10	C263
			N07263		
2.4654	NiCr20Co13Mo4Ti3Al	NC20K14	5704, 5706, 5708, 5709		Waspaloy
			N07001		
2.4663	NiCr23Co12Mo		N06617		617
2.4668	NiCr19Fe19Nb5Mo3	NC19FeNb	5662, 5663	HR8	718
			N07718		
2.4669	NiCr15Fe7TiAl	NC15FeTNbA	5669		X750
			N07750		
2.4816	NiCr15Fe	NC16FeT	5665		600
			N06600		
2.4856	NiCr22Mo9Nb	NC22DNb	5599, 5666	NA21	625
			N06625		
2.4973	NiCr19CoMo	NC20KDTA	5712, 5713		Rene 41
			N07041		
2.4989	NCoCr20Ni20W	KCN20DNbW	5765		S816
			R30816		

Further steel grades on request



We Know Quality – Down to Every Little Detail

For more than 100 years Saarschmiede GmbH Freiformschmiede has been successfully meeting demanding challenges associated with high-quality forgings for various applications. Our technical expertise enables us to manufacture innovative products economically and conserve resources.

In order to constantly improve its processes and products Saarschmiede introduced a quality management system early on, which has gradually been supplemented by a safety

management as well as an environmental and energy management system.

Our current integrated management system (IMS) is certified by independent external bodies, which regularly review and confirm our compliance with the standards ISO 9001, ISO 14001 and ISO 50001. Furthermore, there are customer and industry-specific approvals, confirming the conformity of our IMS with the relevant requirements.

You cannot find your line of business or industry sector in this brochure?

Your applications are not shown?

You have some questions or would like to discuss your requirements with us?

You can obtain further information at
www.saarschmiede.com

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