

RELIABLE POWER OF INVESTMENT CASTING

www.afshassasdokum.com



DEFENCE	MACHINE	TEXTILE	MARINE	PUMP & VALVE	AVIATION
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AUTOMOTIVE AGRICULTURE MEDICAL INDUSTRIAL KITCHEN



Our Company

AFS Hassas Dokum San. Tic. Ltd. Şti. was established as subsidiary of AFS Bıçak ve Kalıp San. Dış Tic. Ltd. Şti. in 2011 and in 2014 with new investment and increased capacity, AFS Hassas Dokum moved to new modern facility, has 2000 m2 closed area 4000 m2 open area, in Tuzla İstanbul. Depending on new breakthrough AFS Hassas Dokum, has the continuous development, has succeeded in moving up to the level of the export share.

Our company which serves to Defense industry, Aviation, Automotive, Machinery, Agricultural, Industrial kitchen, Pumps & Valve, Medical and Other industries, has equiped our laboratory to respond to every requirement with its experienced technical staff, continues their work depends of European.

As the casting material; Steel, Stainless Steel, Aluminium, Copper, Bronze, using optional super alloys and special alloys, are casted in induction melting and resistance combustion furnace in control.

AFS Hassas Dokum has a monthly 60.000 kg casting capacity in Investment casting of for the parts which have 1 gr of weight up to 50 kg.

AFS Hassas Dokum, as well as being a supplier company, it provides the customers for product development and supports their design with its experience and knowdge.

AFS Hassas Dokum has been a reliable and the strong brand name in investment casting sector with its commitment to customers, advanced staff, its value to the environment and its energy since its establisment.



Our Mission

- To convert our earinings to investment, and also to convert the investments to technology,
- To focus on reserch and developing for products which are in superior technically and have international competition power,
- To develop high technology and quality products which have optimum price/performance ratio,
- To provide our customer fast and effective technical support,
- To create and maintain a dynamic and flexible organizational structure that is adapted so fast to the changeable World conditions and satisfy them,
- To achieve financial stability and profitable growth,
- To have a high opinion of occupational health and safety and to act responsibly taking notice of social sensivity.



Our Vision

Since it was founded, our vision has been to protect and empower our status as being a solution center which we have deserved to be with good reason, and to be a desired company with its service quality, solution partners and production quality during the forthcoming period not only in Turkey but also in the worldwide market.

Quality Control

- TS EN ISO 9001:2008 Quality Management System Certificate
- Ability of preparing the documantation of APQP, 8D Report, EN-10204-3.1, PPAP and SPC files and tracing them.
- Chemical analysis, Hardness Test and Surface Roughness Equipments
- Metallography Laboratory Equipments
- Dimensional Measurement Equipments
- Non-destructive Testing Equipments



Our Sales Policy

AFS Hassas Dokum 's name is frequently mentioned as a strong company in investment casting by producing competitive and sustainable quality products becouse of working in line with technical staff and certified suppliers.

Our company with its customer visits, determining customer needs, keeping communication with customer at each stage from order to delivery, is growing with strong steps with domestic and overseas sales



Advantages Of Investment Casting

- Casting in high surface quality
- Capability of producing interlaced parts with fine details
- Freedom in material selection
- Reducing machining to minimum level
- Dimensional precision
- Economic tooling investment
- Reasonable prices



Our Quality Policy

• TS EN ISO 9001:2008: "Providing quality product and service at each stage" with the purpose of realization of Quality Norms under the light of Quality Management System.

• "Continuous Customer Satisfaction"

by meeting customer need & expectations and giving good service for after-sales in the best way with the guarantee of fulfillment and quality assurance

"Protection of Company Image and to move the High Level"
with the management's effective leadership with the latest innovations in modern technology.

• "Continuous Process Improvement"

with the being aware of saving time and waste of resources and reducing cost of production, producing right and requested quality product at first time instead of reproduction

• "Protection of the Natural Environment"

For both using of production facilities, and also using products & services

• "Continuous Education"

with the transfering of the necessary information to employees at all levels of the organization and all of the company's suppliers by senior management to achive higg level performance.



INVESMENT CASTING PROCESS



Product and Tooling Design

According to customer requirements, tool is designed based on technical drawing or original sample.





Wax Injection

After assembling of tools into automatic PLC controlled injection machine, molten wax is enjected into aluminium tool under pressure.





Pattern Tree Design and Wax Assemmbly

Produced wax patterns with the amount of order, are assembled to runners that have been produced as of wax as the same, so wax trees are constructed.

Each wax tree is constructed comply with process paramaters.



Ceramic slurry is formed by using special exported refractory materials in creamicroom. Ready wax tree are coated by ceramic in slurry for getting shell thickness. It's provided in the creation of healthy and flawless ceramic shells by keeping under constant control of ambient temperature, humidity and the other parameters.



Dewaxing

Ceramic -coated wax trees are subjected to wax removal process after 3-4 days drying operation. Wax is removed from ceramic mould by means of steam pressure in autoclave system.







Seramic Sintering

After pre-heating operation, ceramic moulds are subjected to sintering process in high capacity furnaces operated with electric and natural gas.



Casting

Casting process of ceramic moulds are performed after preparing all kind of required material and obtaining of chemical controls in induction and aluminium melting furnaces.





Runner Cut and Grindling

Ceramic shells on casted tress are cleaned by pneumatic breaker machines after cooling operation. Casted parts are cut off from trees by cutting machines.



Surface Operations, Sanding

According to alloy contents of casted part, surface cleaning process are implemented to every part. Respective and different surface abrasive materials are used in steell and stainless sand blasting machines for obtaining required surface quality. Pickling and Passivation processes are also performed in stainless products.







Visual Control

All produced parts are inspected %100 visual control. Defected parts are eliminated and recorded as quality results.



Dimension Control

As the last operation step, quality control department execute dimensional check and the other destructive and non-destructive tests and prepare a report. All reports are sent to customer with delivery.







INDUSTRIES WE SERVE



Automotive Industry















Defence Industry

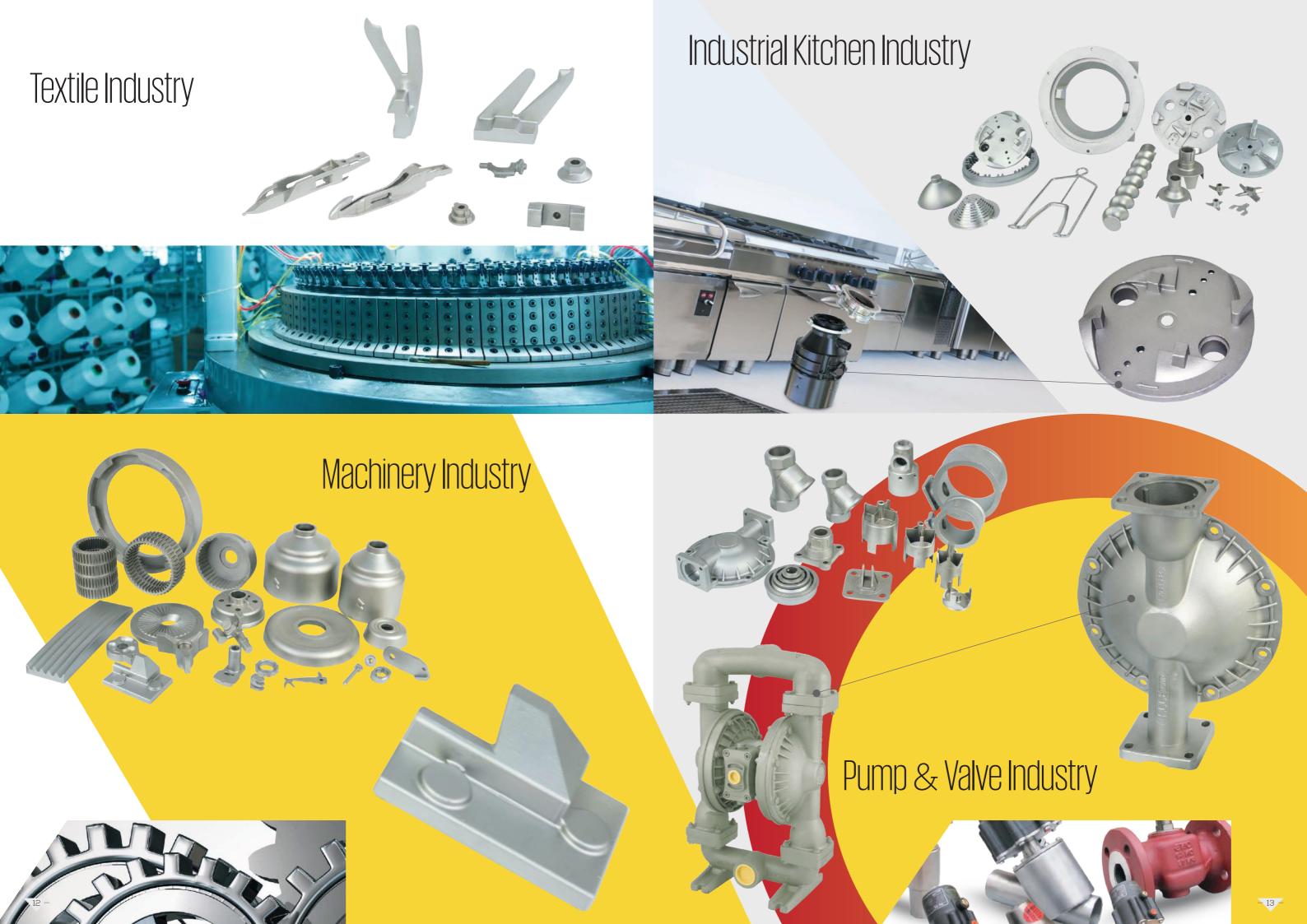






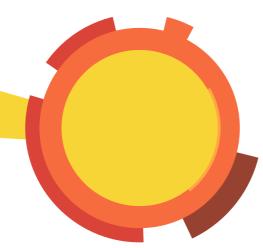








Technical Informations



GENERAL TOLERANCE TABLE DIMENSIONAL TOLERANCES

Dimensio	n Range	Length	Width	Height
(m		D1 (+/-)	D2 (+/-)	D3 (+/-)
0	6	0,10	0,08	0,06
6	10	0,12	0,10	0,60
10	14	0,15	0,12	0,09
14	18	0,20	0,14	0,09
18	24	0,25	0,17	0,12
24	30	0,30	0,20	0,14
30	40	0,37	0,25	0,17
40	50	0,44	0,30	0,20
50	65	0,52	0,38	0,23
65	80	0,60	0,46	0,27
80	100	0,68	0,53	0,30
100	120	0,76	0,60	0,33
120	140	0,84	0,65	0,36
140	160	0,92	0,72	0,38
160	180	1,02	0,80	0,42
180	200	1,12	0,88	0,43
200	225	1,28	0,95	0,47
225	250	1,44	1,05	0,51
250	280	1,64	1,15	0,56
280	315	1,84	1,25	0,63
315	355	2,10	1,40	0,71
355	400	2,40	1,60	0,80
400	450	2,70	1,80	0,90
450	500	3,00	2,00	1,00

According to VDG P 690

D1: General (extensive) Tolerances

D2: Tolerances to be procured (normal)

D3: Narrowest Tolerances

CASTABLE HOLE LENGTHS

Diamatan (d) mass	Length (mm)		
Diameter (d) mm	Through	Blind	
2 - 4	1 x d	0,5 x d	
4 - 6	2 x d	1 x d	
6 - 10	3 x d	1,6 x d	
10	4 x d	2 x d	

CASTABLE CHANNEL LENGTHS

Diameter (d) mm	Length (mm)	
Diameter (a) min	Open	Close
2 - 4	1 x d	1,0 x d
4 - 6	2 x d	1,0 Χ α
6 - 10	3 x d	1,6 x d
10	4 x d	2 x d

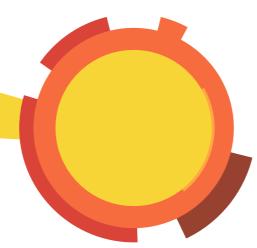
GEOMETRIC TOLERANCES

Dimension (mm)					
Ran	ge	D1 (+/-)	D2 (+/-)		
	50	0,25	0,10	FLATNESS	
50	130	0,50	0,30	FLATNESS	
130	255	1,00	0,50	LINEADITY	
255	380	1,56	0,90	LINEARITY	
	50	0,25	0,13		
50	130	0,75	0,25	PERPENDICULARITY	
130	255	1,25	0,50	PARALLELISM	
255	380	2,00	0,90		
		1°	0,5°	ANGLE	
Dimension tole	rance table values	PROFILE			
Dimension tolerance table values				HOLE	

D1: Normal tolerances (mm)

D2: Narrow tolerances (mm)

Technical Informations



MACHINING ALLOWANCES

Range (mm)		Standard margins (mm)	
	18	0.5	
18	50	0,5	
50	80	1,0	
80	120	1,0 - 2,0	

SURFACE QUALITY

		CLA (μinch)	Ra (μm)	Rz (μm)
	N1	1	0,025	0,022 - 0,30
	N2	2	0,050	0,45 - 0,60
Ma abining	N3	4	0,1	0,8 - 1,1
Machining	N4	8	0,2	1,0 - 1,8
	N5	16	0,4	1,6 - 2,8
	N6	32	0,8	3,0 - 4,8
	N7	63	1,6	5,9 - 8,0
Investment Casting	N8	125	3,2	12 - 16
	N9	250	6,3	23 - 32

MATERIALS

	Standart No	DIN	AISI
	1.0528	C30	1030
	1.0511	C40	1040
Carbon Steels	1.0540	C50	1050
	1.0601	C60	1060
	1.7218	25CrMo4	4130
Heat Treatable Steels	1.7225	42CrMo4	4140
	1.6511	36CrNiMo4	4340
	1.5919	15CrNi6	3115
Case Hardening Steels	1.6523	21NiCrMo2	8620
Case Hardening Steels	1.7131	16MnCr5	5115
	1.7147	20MnCr5	5120
	1.2003	75Cr1	
	1.2067	100Cr6	L1
	1.2080	X210Cr12	D3
	1.2241	51CrV4	
	1.2343	X38CrMoV 5-1	H11
Tool Steels	1.2344	X40CrMov 5-1	H13
	1.2379	X155CrVMo 12-1	D2
	1.2436	X210CrV12	
	1.2713	55NiCrMoV6	L6
	1.2714	56NiCrMoV7	
	1.2842	90MnCrV8	O2
High Speed Steels	1.3343	s 6-5-2	M 2
riigii speed steels	1.3344	s 6-5-3	M 3 Class 2
	1.4305	X 10 CrNiS 18 9	303
	1.4301	X 5 CrNi 18 10	304
300-Serie	1.4306	X 2 CrNi 19-11	304 L
Stainless Steels	1.4841	X 15 Cr NiSi 25-20	310
	1.4401	X 5 CrNiMo 17 12 2	316
	1.4404	X 2 CrNiMo 17 13 2	316 L
	1.4006	X10Cr13	410 - CA 15
400-Serie	1.4021	X20Cr13	420
Stainless Steels	1.4016	X6Cr17	430
Stanness Steels			
	1.4729	GX40CrSi13	
Heat-Resisting Stainless Steels	1.4840	GX15CrNi25-20	

	Standart No	DIN	AISI	
All	3.2374	G-AlSi7Mg0,3	A 356	
Alluminium Alloys	3.2384	G-AlSi7Mg0,6	A 357	!

	Standart No	DIN
	2.0692	G-CuAl8Mn
Copper Alloys	2.0975	G-CuAll0Ni
	2.1096	G-CuSn5ZnPb

	Standart No	DIN	ALLOY
	2.4723	G-CoCr29Mo	ASTM F-75
Cobalt Alloys	2.4964	CoCr20W 15 Ni	Stellite 25
·	2.4989	CoCr 20 Ni 20 W	Steelite 21

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