

# TSN MAKİNE VE MÜHENDİSLİK SAN. LTD. ŐTİ.



FuatpaŐa Mahallesi 32. Sokak No: 24 / 26  
MERKEZ/KÜTAHYA



Genel Müdür Mak. Müh. Mehmet Talha TOSUN  
0545 309 24 17



tsn.makine.muhendislik  
www.tsnmakine.com





|                               |               |
|-------------------------------|---------------|
| ➤ <u>HAKKIMIZDA</u>           | <u>3-6</u>    |
| ➤ <u>KALİTE BELGELERİ</u>     | <u>7-8</u>    |
| ➤ <u>MAKİNE PARKURU</u>       | <u>9-25</u>   |
| ➤ <u>KALİTE KONTROL</u>       | <u>26-33</u>  |
| ➤ <u>AR-GE ve MÜHENDİSLİK</u> | <u>34-88</u>  |
| ➤ <u>İMALAT PARÇALAR</u>      | <u>89-147</u> |
| ➤ <u>REFERANSLAR</u>          | <u>148</u>    |



## BİZ KİMİZ?



- KÜTAHYA MERKEZ
- 35 YILLIK TECRÜBE
- 700m2 İŞ SAHASI
- TALAŞLI İMALAT



## BİZ KİMİZ?



- SAVUNMA SAN, PORSELEN,  
CAM, OTOMOTİV
- CAD-CAM, AR-GE
- ULUSAL ve ULUSLARARASI  
STANDARTLAR



## VİZYONUMUZ



- DİNAMİK ve DEVAMLı
- ÖRNEK ve LİDER
- İLERİ TEKNOLOJİLER
- SEKTÖREL ÇEŞİTLİLİK
- ÇALIŞMA KAPASİTESİ
- KÜRESEL FİRMA OLMAK
- GÜVENİLİR OLMAK
- YÜKSEK ÜRETİM STANDARDI



## MİSYONUMUZ



- PROFESYONEL
- EKONOMİK
- DİSİPLİN
- DÜRÜSTLÜK
- AZİMLİ
- MÜŞTERİ MEMNUNİYETİ
- KALİTE
- YENİLİKÇİ ÇÖZÜMLER





ISO-9001

ISO-10002

**SQR CERTIFICATION**

**SQR**

**Sertifika**  
CERTIFICATE

**TSN**  
MAKİNE  
MÜHENDİSLİK

**TSN MAKİNE VE MÜHENDİS. SAN.VE TİC. LTD. ŞTİ.**

FUATPAŞA MAH. 32. SK. NO: 24 MERKEZ/KÜTAHYA/TÜRKİYE

**ISO 9001:2015**

**Kapsam/Scope**

CAM AMBALAJ, CAM SOPRA VE CAM MUTFAK EŞYALARI İÇİN KONVEYÖR HATLARI, KALİTE KONTROL HATLARI, PAKETLEME HATLARI VE ÜRETİM HATLARI İLE YEDEK PARÇALARI, CAM VE PORSELEN FABRİKALARI İÇİN ÖZEL ÜRETİM EKİPMANLARI VE YEDEK PARÇALARI, ÜRETİM HATLARI İÇİN MEKANİK SİSTEMLERİN TASARIMI VE İMALATI, TALAŞLI İMALAT FAALİYETLERİ (FREZE, TORNA, TASLAMA), GAZ ALTI VE TIG KAYNAĞI, ÇELİK, ALÜMİNYUM VE ÖZEL ALAŞIMLARDAN HASSAS PARÇA İMALATI, YÜKSEK HASSASİYETLİ PARÇA VE EKİPMAN ÜRETİMİ, PROTOTİP GELİŞTİRME VE AR-GE ÇALIŞMALARI, ÖZEL PROJELERİN GERÇEKLEŞTİRİLMESİ, MEKANİK TASARIM VE ÜRETİM SÜREÇLERİNDE MÜHENDİSLİK DESTEKLERİ, MONTAJ VE TEST HİZMETLERİ, ANAHTAR TESLİM ÇÖZÜMLERİN SUNULMASI, SAVUNMA SANAYİ VE ENDÜSTRİYEL SEKTÖRLER İÇİN YÜKSEK KALİTE VE HASSASİYETTE METAL VE MAKİNE PARÇALARININ ÜRETİMİ

CONVEYOR LINES, QUALITY CONTROL LINES, PACKAGING LINES AND PRODUCTION LINES AND SPARE PARTS FOR GLASS PACKAGING, GLASS TABLEWARE AND GLASS KITCHENWARE, SPECIAL PRODUCTION EQUIPMENT AND SPARE PARTS FOR GLASS AND PORCELAIN FACTORIES, DESIGN AND MANUFACTURING OF MECHANICAL SYSTEMS FOR PRODUCTION LINES, MACHINING ACTIVITIES (MILLING, LATHE, GRINDING), GAS AND TIG WELDING, PRECISION PARTS MANUFACTURING OF STEEL, ALUMINUM AND SPECIAL ALLOYS, HIGH PRECISION PARTS AND EQUIPMENT PRODUCTION, PROTOTYPE DEVELOPMENT AND R&D STUDIES, SPECIAL PROJECTS REALIZATION, ENGINEERING SUPPORT IN MECHANICAL DESIGN AND PRODUCTION PROCESSES, ASSEMBLY AND TESTING SERVICES, PROVIDING TURNKEY SOLUTIONS, PRODUCTION OF HIGH QUALITY AND PRECISION METAL AND MACHINE PARTS FOR THE DEFENSE INDUSTRY AND INDUSTRIAL SECTORS

**IAF KOD : 15-17-18-34**

Bu sertifika ile yukarıda adı geçen kuruluşun Kalite Yönetim Sistemi gerekliliklerini karşıladığı tasdik olunur.  
This is to certify that the above mentioned company meets the requirement of Quality Management System.

|   |              |
|---|--------------|
| Sertifika No / Certification Number     | : MTS-46022  |
| İlk Kayıt Tarihi / Date of Initial Reg. | : 12.08.2025 |
| Basım Tarihi / Date of Certificate      | : 12.08.2025 |
| Geçerlilik Tarihi / Date of Expiry      | : 11.08.2026 |
| Revizyon / Revision                     | : 000        |

Bu sertifika kuruluşun belgelendirme şartlarına uygun ve yılda en az 1 kez yapılacak olan gözlem denetimlerinin başarıyla geçmesi halinde üç yıllık sertifikasyon periyodu bitiri tarihine kadar geçerlidir.  
This certificate is valid until the end of the three-year certification period if the organization complies with the certification requirements and the surveillance audits to be carried out at least once a year are completed successfully.

**IAF** ACCREDITED  
MSCB-136

**SIGMACERT DOO**  
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YS.FR.129 Rev.04 02.05.2025

**Genel Müdür / General Manager**

**SQR CERTIFICATION**

**SQR**

**Sertifika**  
CERTIFICATE

**TSN**  
MAKİNE  
MÜHENDİSLİK

**TSN MAKİNE VE MÜHENDİS. SAN.VE TİC. LTD. ŞTİ.**

FUATPAŞA MAH. 32. SK. NO: 24 MERKEZ/KÜTAHYA/TÜRKİYE

**ISO 10002:2018**

**Kapsam/Scope**

CAM AMBALAJ, CAM SOPRA VE CAM MUTFAK EŞYALARI İÇİN KONVEYÖR HATLARI, KALİTE KONTROL HATLARI, PAKETLEME HATLARI VE ÜRETİM HATLARI İLE YEDEK PARÇALARI, CAM VE PORSELEN FABRİKALARI İÇİN ÖZEL ÜRETİM EKİPMANLARI VE YEDEK PARÇALARI, ÜRETİM HATLARI İÇİN MEKANİK SİSTEMLERİN TASARIMI VE İMALATI, TALAŞLI İMALAT FAALİYETLERİ (FREZE, TORNA, TASLAMA), GAZ ALTI VE TIG KAYNAĞI, ÇELİK, ALÜMİNYUM VE ÖZEL ALAŞIMLARDAN HASSAS PARÇA İMALATI, YÜKSEK HASSASİYETLİ PARÇA VE EKİPMAN ÜRETİMİ, PROTOTİP GELİŞTİRME VE AR-GE ÇALIŞMALARI, ÖZEL PROJELERİN GERÇEKLEŞTİRİLMESİ, MEKANİK TASARIM VE ÜRETİM SÜREÇLERİNDE MÜHENDİSLİK DESTEKLERİ, MONTAJ VE TEST HİZMETLERİ, ANAHTAR TESLİM ÇÖZÜMLERİN SUNULMASI, SAVUNMA SANAYİ VE ENDÜSTRİYEL SEKTÖRLER İÇİN YÜKSEK KALİTE VE HASSASİYETTE METAL VE MAKİNE PARÇALARININ ÜRETİMİ

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Bu sertifika ile yukarıda adı geçen kuruluşun Müşteri Memnuniyeti Yönetim Sistemi gerekliliklerini karşıladığı tasdik olunur.  
This is to certify that the above mentioned company meets the requirement of Customer Satisfaction Management System.

|   |              |
|---|--------------|
| Sertifika No / Certification Number     | : MTS-46025  |
| İlk Kayıt Tarihi / Date of Initial Reg. | : 12.08.2025 |
| Basım Tarihi / Date of Certificate      | : 12.08.2025 |
| Geçerlilik Tarihi / Date of Expiry      | : 11.08.2026 |
| Revizyon / Revision                     | : 000        |

Bu sertifika kuruluşun belgelendirme şartlarına uygun ve yılda en az 1 kez yapılacak olan gözlem denetimlerinin başarıyla geçmesi halinde üç yıllık sertifikasyon periyodu bitiri tarihine kadar geçerlidir.  
This certificate is valid until the end of the three-year certification period if the organization complies with the certification requirements and the surveillance audits to be carried out at least once a year are completed successfully.

**SIGMACERT DOO**  
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YS.FR.129 Rev.04 02.05.2025

**Genel Müdür / General Manager**





ISO-14001

ISO-45001

**SQR CERTIFICATION**

**SQR**

**Sertifika**  
CERTIFICATE

**TSN**  
MAKİNE VE MÜHENDİSLİK

**TSN MAKİNE VE MÜHENDİS. SAN.VE TİC. LTD. ŞTİ.**

FUATPAŞA MAH. 32. SK. NO: 24 MERKEZ/KÜTAHYA/TÜRKİYE

**ISO 14001:2015**

**Kapsam/Scope**

CAM AMBALAJ, CAM SOFRA VE CAM MUTFAK EŞYALARI İÇİN KONVEYÖR HATLARI, KALİTE KONTROL HATLARI, PAKETLEME HATLARI VE ÜRETİM HATLARI İLE YEDEK PARÇALARI, CAM VE PORSELEN FABRİKALARI İÇİN ÖZEL ÜRETİM EKİPMANLARI VE YEDEK PARÇALARI, ÜRETİM HATLARI İÇİN MEKANİK SİSTEMLERİN TASARIMI VE İMALATI, TALAŞLI İMALAT FAALİYETLERİ (PREZE, TORNA, TAŞLAMA), GAZ ALTI VE TIG KAYNAĞI, ÇELİK, ALÜMİNYUM VE ÖZEL ALAŞIMLARDAN HASSAS PARÇA İMALATI, YÜKSEK HASSASİYETLİ PARÇA VE EKİPMAN ÜRETİMİ, PROTOTİP GELİŞTİRME VE AR-GE ÇALIŞMALARI, ÖZEL PROJELERİN GERÇEKLEŞTİRİLMESİ, MEKANİK TASARIM VE ÜRETİM SÜREÇLERİNDE MÜHENDİSLİK DESTEKLERİ, MONTAJ VE TEST HİZMETLERİ, ANAHTAR TESLİM ÇÖZÜMLERİN SUNULMASI, SAVUNMA SANAYİ VE ENDÜSTRİYEL SEKTÖRLER İÇİN YÜKSEK KALİTE VE HASSASİYETTE METAL VE MAKİNE PARÇALARININ ÜRETİMİ

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**IAF KOD : 15-17-18-34**

Bu sertifika ile yukarıda adı geçen kuruluşun Çevre Yönetim Sistemi gerekliliklerini karşıladığı tasdik olunur.  
This is to certify that the above mentioned company meets the requirement of Environmental Management System.

|   |              |
|---|--------------|
| Sertifika No / Certification Number     | : MTS-46023  |
| İlk Kayıt Tarihi / Date of Initial Reg. | : 12.08.2025 |
| Besim Tarihi / Date of Certificate      | : 12.08.2025 |
| Geçerlilik Tarihi / Date of Expiry      | : 11.08.2026 |
| Revizyon / Revision                     | : 000        |

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This certificate is valid until the end of the three-year certification period if the organization complies with the certification requirements and the surveillance audits to be carried out at least once a year are completed successfully.

**IAF** ACCREDITED  
MSCB-126

**IAS** ACCREDITED  
MSCB-126

**SIGMACERT DOO**

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belgelendirme@sigmacert.com.tr +38268118852  
YS.FR.129 Rev.04 02.05.2025

**Genel Müdür / General Manager**

**SQR CERTIFICATION**

**SQR**

**Sertifika**  
CERTIFICATE

**TSN**  
MAKİNE VE MÜHENDİSLİK

**TSN MAKİNE VE MÜHENDİS. SAN.VE TİC. LTD. ŞTİ.**

FUATPAŞA MAH. 32. SK. NO: 24 MERKEZ/KÜTAHYA/TÜRKİYE

**ISO 45001:2018**

**Kapsam/Scope**

CAM AMBALAJ, CAM SOFRA VE CAM MUTFAK EŞYALARI İÇİN KONVEYÖR HATLARI, KALİTE KONTROL HATLARI, PAKETLEME HATLARI VE ÜRETİM HATLARI İLE YEDEK PARÇALARI, CAM VE PORSELEN FABRİKALARI İÇİN ÖZEL ÜRETİM EKİPMANLARI VE YEDEK PARÇALARI, ÜRETİM HATLARI İÇİN MEKANİK SİSTEMLERİN TASARIMI VE İMALATI, TALAŞLI İMALAT FAALİYETLERİ (PREZE, TORNA, TAŞLAMA), GAZ ALTI VE TIG KAYNAĞI, ÇELİK, ALÜMİNYUM VE ÖZEL ALAŞIMLARDAN HASSAS PARÇA İMALATI, YÜKSEK HASSASİYETLİ PARÇA VE EKİPMAN ÜRETİMİ, PROTOTİP GELİŞTİRME VE AR-GE ÇALIŞMALARI, ÖZEL PROJELERİN GERÇEKLEŞTİRİLMESİ, MEKANİK TASARIM VE ÜRETİM SÜREÇLERİNDE MÜHENDİSLİK DESTEKLERİ, MONTAJ VE TEST HİZMETLERİ, ANAHTAR TESLİM ÇÖZÜMLERİN SUNULMASI, SAVUNMA SANAYİ VE ENDÜSTRİYEL SEKTÖRLER İÇİN YÜKSEK KALİTE VE HASSASİYETTE METAL VE MAKİNE PARÇALARININ ÜRETİMİ

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**IAF KOD : 15-17-18-34**

Bu sertifika ile yukarıda adı geçen kuruluşun İş Sağlığı ve Güvenliği Yönetim Sistemi gerekliliklerini karşıladığı tasdik olunur.  
This is to certify that the above mentioned company meets the requirement of Occupational Health & Safety Management System.

|   |              |
|---|--------------|
| Sertifika No / Certification Number     | : MTS-46024  |
| İlk Kayıt Tarihi / Date of Initial Reg. | : 12.08.2025 |
| Besim Tarihi / Date of Certificate      | : 12.08.2025 |
| Geçerlilik Tarihi / Date of Expiry      | : 11.08.2026 |
| Revizyon / Revision                     | : 000        |

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This certificate is valid until the end of the three-year certification period if the organization complies with the certification requirements and the surveillance audits to be carried out at least once a year are completed successfully.

**IAF** ACCREDITED  
MSCB-130

**IAS** ACCREDITED  
MSCB-130

**SIGMACERT DOO**

Gavra Vukovića BB Podgorica, Montenegro  
belgelendirme@sigmacert.com.tr +38268118852  
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**Genel Müdür / General Manager**



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MERKEZ/KÜTAHYA



Genel Müdür Mak. Müh. Mehmet Talha TOSUN

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www.tsnmakine.com

8/148

## MAKİNE ADI

BU BÖLÜMDE ÜRETİM BÖLÜMÜNDE BULUNAN CNC VE MANUEL TEZGAHLARIN TANITIMLARI VE ÖZELLİKLERİ YER ALACAKTIR. BUNLARIN YANI SIRA İMALATTA KULLANILAN BAZI MAKİNELER DE BELİRTİLMİŞTİR. ÖZELLİKLE CNC TEZGAHLAR MODEL YILLARI İLE ÜRETİM HASSASİYETİ KONUSUNDA DİKKAT ÇEKMEKTEDİR. FİRMA OLARAK ÖNÜMÜZDEKİ SÜREÇTE 5 EKSEN BİR CNC TEMİNİ PLANLANMAKTADIR.

- MARKA
- MODEL
- MODEL YILI
- EKSEN SAYISI
- TABLA ALANI
- TEZGAH HASSASİYETİ
- KONTROL PANELİ TÜRÜ
- MOTOR GÜCÜ



## CNC FREZE



- QUASER
- MV184C
- 2021
- 3 EKSEN
- 1200x600
- 0,005mm
- MITSUBISHI M80
- 15 KW



## CNC FREZE



- AWEA
- AF650
- 2022
- 3 EKSEN
- 750x510
- 0,005mm
- MITSUBISHI M80
- 15 KW



## CNC FREZE



- PROSEIKI
- VMC 1000L
- 2020
- 4 EKSEN
- 1200x500
- 0,005mm
- MITSUBISHI M80
- 15 KW



## CNC FREZE



- **UNIX**
- **NX-1060**
- **2021**
- **3 EKSEN**
- **1200x600**
- **0,005mm**
- **MITSUBISHI M80**
- **15 KW**



## CNC TORNA



- **GOODWAY**
- **GA-2800**
- **2006**
- **2 EKSEN**
- **10"x600mm**
- **0,005mm**
- **FANUC Oi-TC**
- **15 KW**



## CNC TORNA



- **TAKISAWA**
- **EX108II**
- **2022**
- **2 EKSEN**
- **8"x476mm**
- **0,005mm**
- **FANUC Oi-TF**
- **7,5 KW**



## MANUEL TORNA



- TOSS
- SN50
- 2002
- 2 EKSEN
- 10"x2000
- 0,01mm
- MANUEL
- 10 KW



## SİLİNDİRİK TAŞLAMA



- **STANKO**
- **3Y131**
- **2000**
- **2 EKSEN**
- **8"x800mm**
- **0,001mm**
- **NC**
- **10 KW**



## YÜZEY TAŞLAMA



- STANKO
- PFG-4080AH
- 2002
- 3 EKSEN
- 400x800mm
- 0,001mm
- NC
- 10 KW



## HIZLI DELİK DELME



- **HIGHTECH**
- **DD 730.30**
- **2022**
- **4 EKSEN**
- **320x440mm**
- **0,01mm**
- **MANUEL**
- **3 KW**



## ŞERİTLİ TESTERE



- KESMAK
- KME 280
- 2022
- 280max
- Ø280mm
- 0,1mm
- NC
- 2 KW



## SÜTUNLU MATKAP



- SEVİNDİK
- CS-32
- 2023
- Ø35max
- 135x300mm
- 0,05mm
- MANUEL
- 1,5 KW



## KILAVUZ ÇEKME



- CRAFT
- X
- 2021
- Ø16max
- 500x1000
- 0,05mm
- MANUEL
- 1 KW



## LAZER MARKALAMA



- **MAYMARS**
- **SG7110**
- **2021**
- **110mm**
- **500mm**
- **0,05mm**
- **NC**
- **2 KW**



## GAZALTI KAYNAK M.



- **MAGMAWELD**
- **RS 250 MK**
- **2020**
- **MIG/MAG**
- **Ø0,8-3mm**
- **X**
- **MANUEL**
- **250A**



## GAZALTI KAYNAK M.



- **MAGMAWELD**
- **ID 220 T**
- **2020**
- **TIG**
- **Ø2,4x175mm**
- **X**
- **MANUEL**
- **220A**



## ÖLÇÜ ALETİ ADI

BU BÖLÜMDE KALİTE KONTROL BÖLÜMÜNDE KULLANILAN ÖLÇÜ ALETLERİNİN TANITIMI YAPILACAKTIR.

- MARKA
- KOD
- ÖZELLİK
- ÖLÇÜ HASSASİYETİ

## ÖLÇÜ ALETİ ADI

KULLANILAN ÖLÇÜ ALETLERİ VE CİHAZLAR ÖLÇÜM HASSASİYETİ VE ÖLÇÜM KALİTESİ İLE ÖN PLANA ÇIKMAKTADIR.

- MARKA
- KOD
- ÖZELLİK
- ÖLÇÜ HASSASİYETİ



## MEKANİK KUMPAS



- INSIZE
- 1205-150S
- 150mm
- 0,05mm

## MEKANİK KUMPAS



- INSIZE
- 1205-300S
- 300mm
- 0,05mm

## MEKANİK KUMPAS



- INSIZE
- 1236-614
- 600mm
- 0,05mm

## DİJİTAL KUMPAS



- INSIZE
- 1108-300
- 300mm
- 0,05mm



## MEKANİK KUMPAS



- MITUTOYO
- 530-104
- 150mm
- 0,05mm

## DİJİTAL KUMPAS



- INSIZE
- 1108-150
- 150mm
- 0,01mm

## MERKEZ MARK. KUMPASI



- INSIZE
- 7205-150
- Ø0-150mm
- 0,01mm

## SAATLİ KUMPAS



- MITUTOYO
- 1312-1315
- 150mm
- 0,01mm



## İÇ ÇAP MİKROMETRESİ



- INSIZE
- 3220-30
- 5-30mm
- 0,01mm

## DİJİTAL MİKROMETRE



- INSIZE
- 3109-A
- 0-25mm
- 0,001mm

## MEKANİK MİKROMETRE



- INSIZE
- 3203-1506
- 0-150mm
- 0,01mm

## MEKANİK MİKROMETRE



- INSIZE
- 3203-3006
- 150-300mm
- 0,001mm



## DIŞÇAP MİKROMETRESİ



- INSIZE
- 3203-3006A
- 150-300mm
- 0,01mm

## SİLİNDİR KOMPORATÖRÜ



- KANON
- 1012-18
- 10-18mm
- 0,01mm

## SİLİNDİR KOMPORATÖRÜ



- MITUTOYO
- 511-921-2
- Ø18-150mm
- 0,005mm

## SİLİNDİR KOMPORATÖRÜ



- INSIZE
- 511-921-2
- Ø150-300
- 0,005mm



## SALGI KOMPARATÖRÜ



- INSIZE
- 2380-02
- 0,2mm
- 0,02mm

## SALGI KOMPARATÖRÜ



- MITUTOYO
- 513-402-10E
- 0,2mm
- 0,01mm

## REFRAKTOMETRE



- INSIZE
- ISQ-RM30
- %30
- %1°

## DİJİTAL MİHENGİR



- INSIZE
- 1156-300
- 0-300mm
- 0,01mm



## HASSAS SU TERAZİSİ



- INSIZE
- 4903-300A
- 300mm
- 0,02mm/m

## T PROB



- MLEY
- SUS304
- 90mm
- X

## OFFSET SAATI



- INSIZE
- 2397-502A
- 50mm
- 0,01mm

## 3D TASTER



- ATORN
- 3B
- 163mm
- 0,01mm



## UNIVERSAL AÇIÖLÇER



- ASIMETO
- NO0182009
- 150mm
- 0,1mm

## ELEKTRONİK PROB



- INSIZE
- 6566
- 158mm
- 5 $\mu$ m



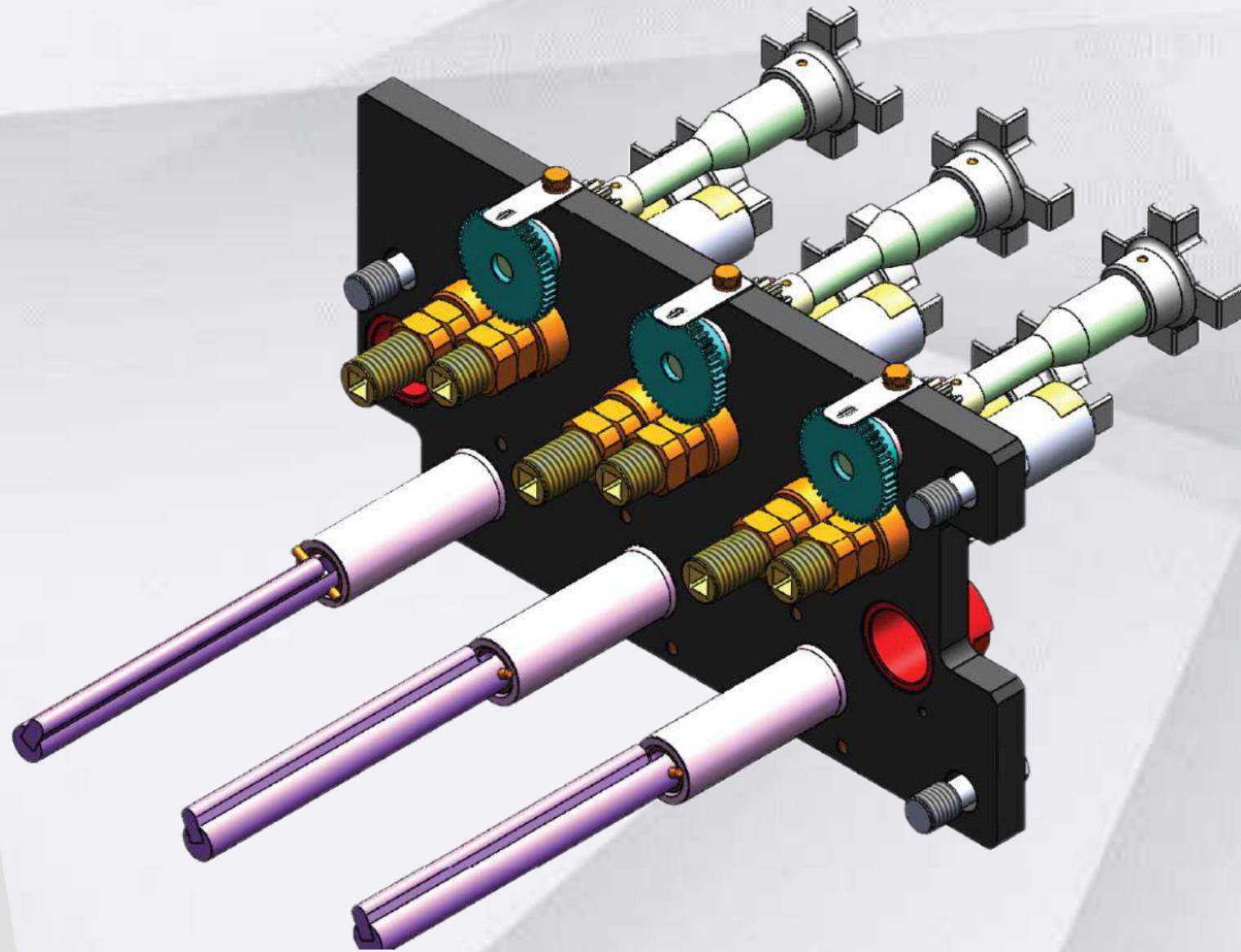
## MONTAJ/PARÇA ADI

BU BÖLÜMDE TASARIM BÖLÜMÜ EKİBİ TARAFINDAN FİRMALAR İÇİN PARÇALARIN TASARIMLARI VE İMALATA UYGUN BİR ŞEKİLDE GÜNCELLEMELERİ YAPILMAKTADIR. BU BÖLÜM İMALAT SÜRECİNİN İLK ADIMI OLUP ÜRETİLECEK PARÇALARIN ÜRETİM HIZI ÜRÜN KALİTESİ VE ÜRÜNLERİN SEVKİYATI SONRASI MONTAJLARIN YAPIMINDA BÜYÜK ROL OYNAMAKTADIR.

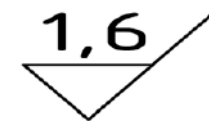
- TEKNİK R. TOLERANSI
- MİNİMUM TOLERANS
- ÜRETİMDE KUL. TEZGAHLAR
- SERTLİK KAPLAMA ISIL İŞLEM
- MONTAJ/PARÇA MALZEMESİ
- MONTAJ/PARÇA AĞIRLIĞI
- TEKNİK R. DATUMLARI
- YÜZEY KALİTESİ



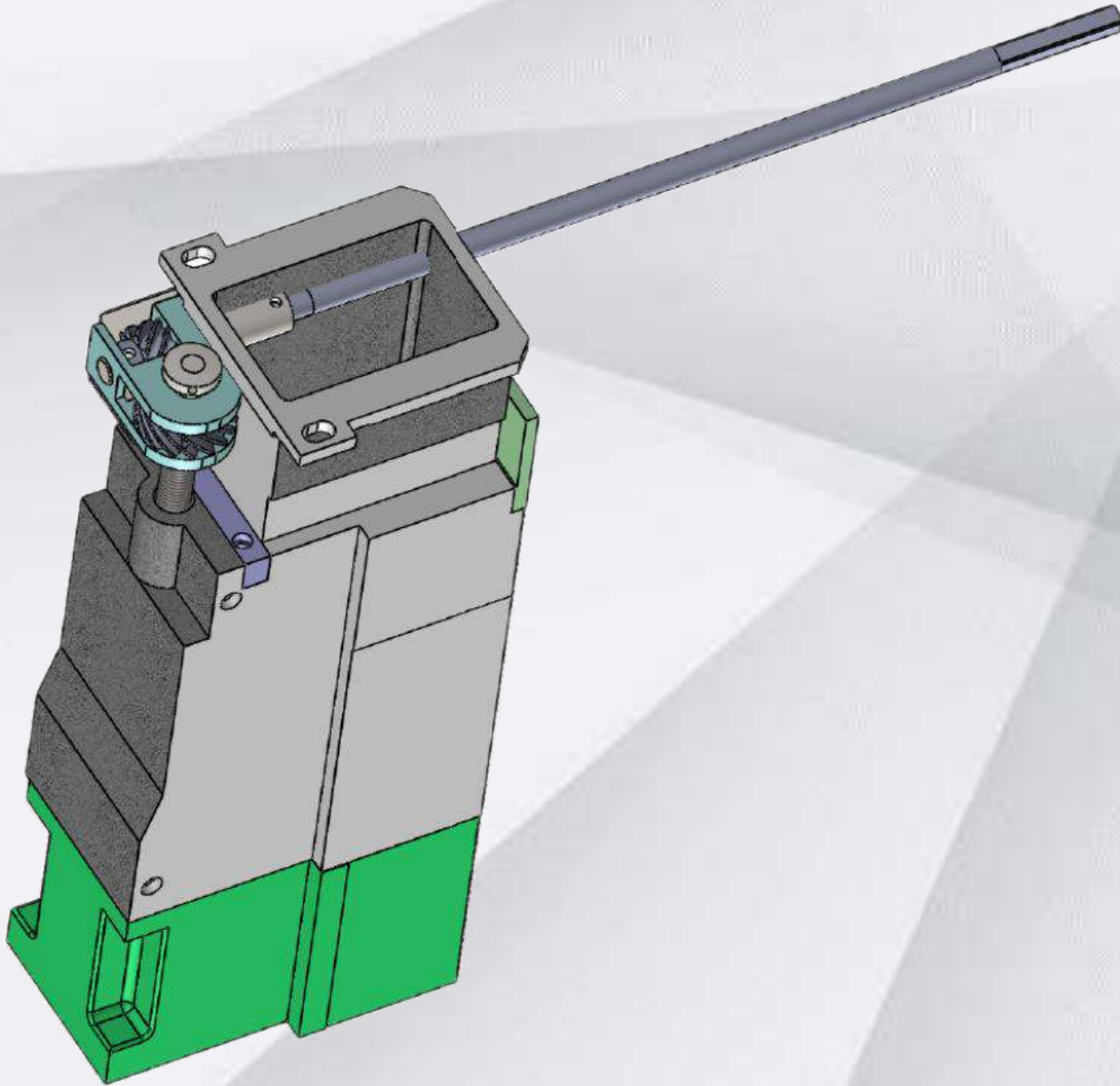
## AYAR PLAKASI MONTAJI



- PARÇA SAYISI: 26 adet
- $12 \begin{matrix} +0,04 \\ -0 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- AISI 4140, AISI 304
- DATUM: A,B



## VERITFLOV MEKANİZMASI

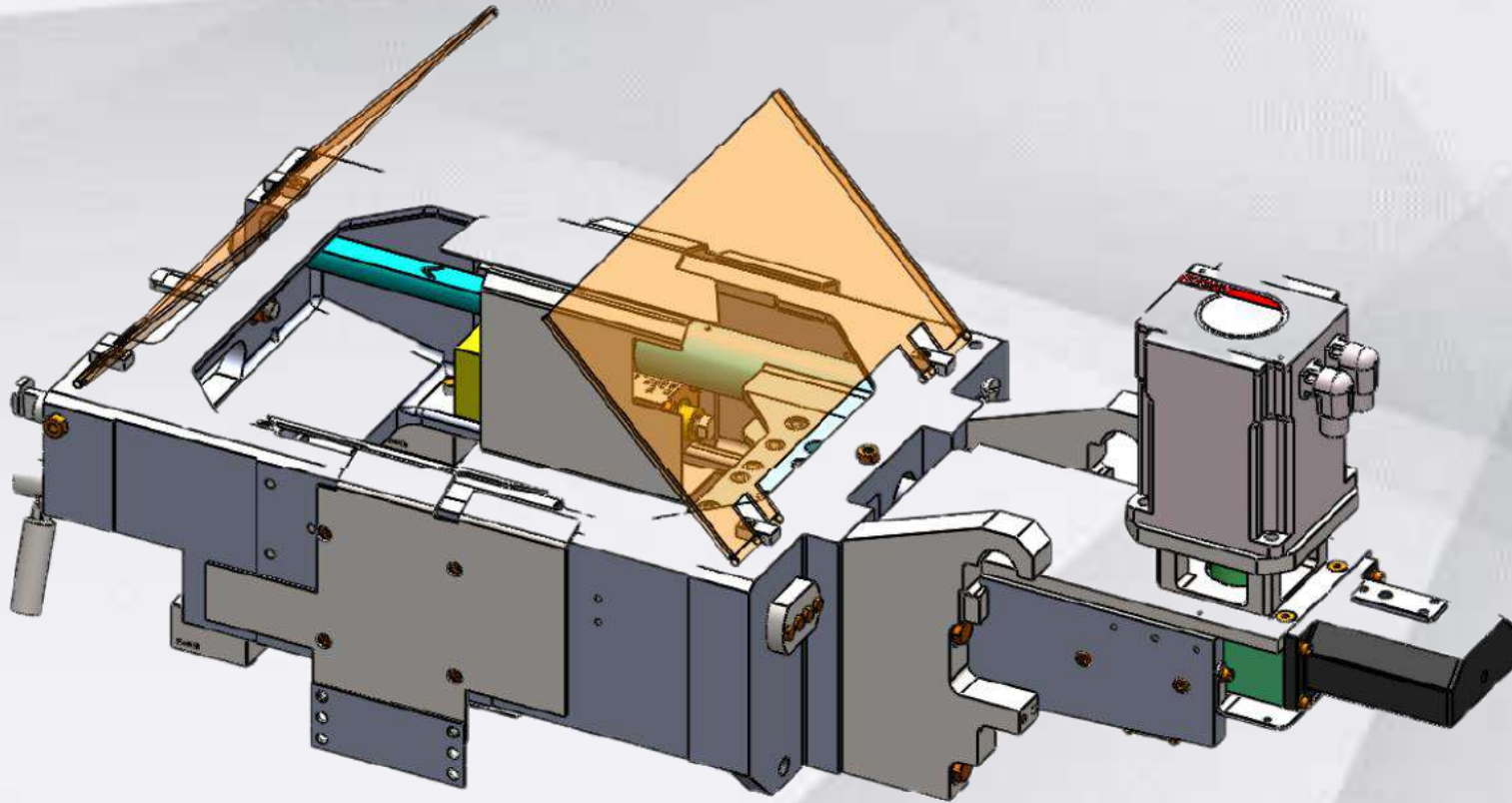


- **PARÇA SAYISI: 24 adet**
- **8  $+0,03$   
 $-0,03$  mm**
- **CNC FREZE, CNC TORNA**
- **ELOKSAL KAPLAMA**
- **7075 Al, AISI 304**
- **DATUM: A,B**

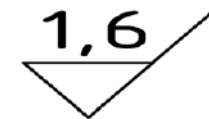
1,6



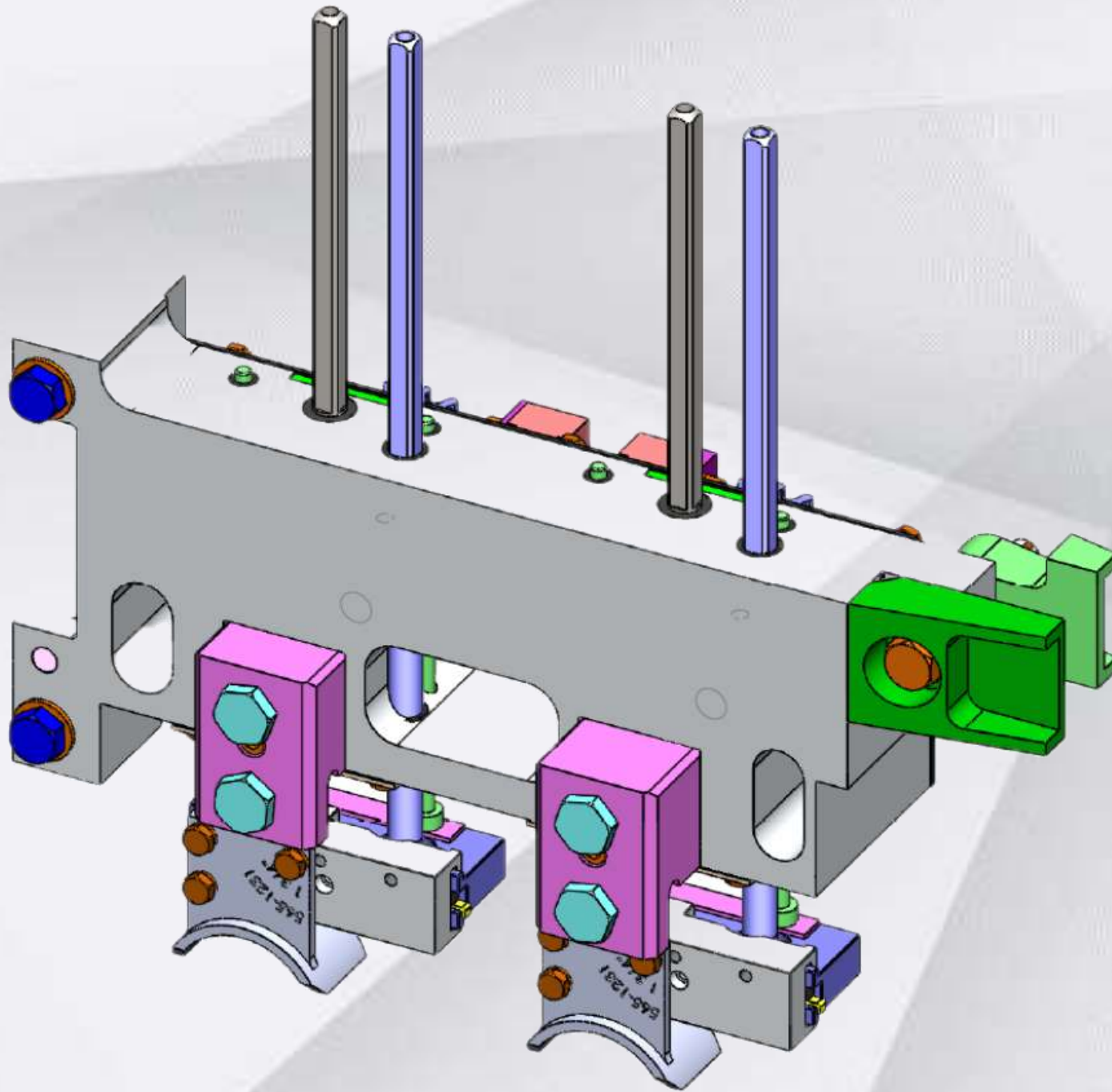
## MAKAS MEKANİZMASI BLOĞU



- PARÇA SAYISI: 66 adet
- $20 \begin{matrix} +0,02 \\ -0,02 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- GERİLİM GİDERME
- GGG50, S235JR
- DATUM: A,B

1,6  


## MAKAS TAMPON MON. 2 DAMLA

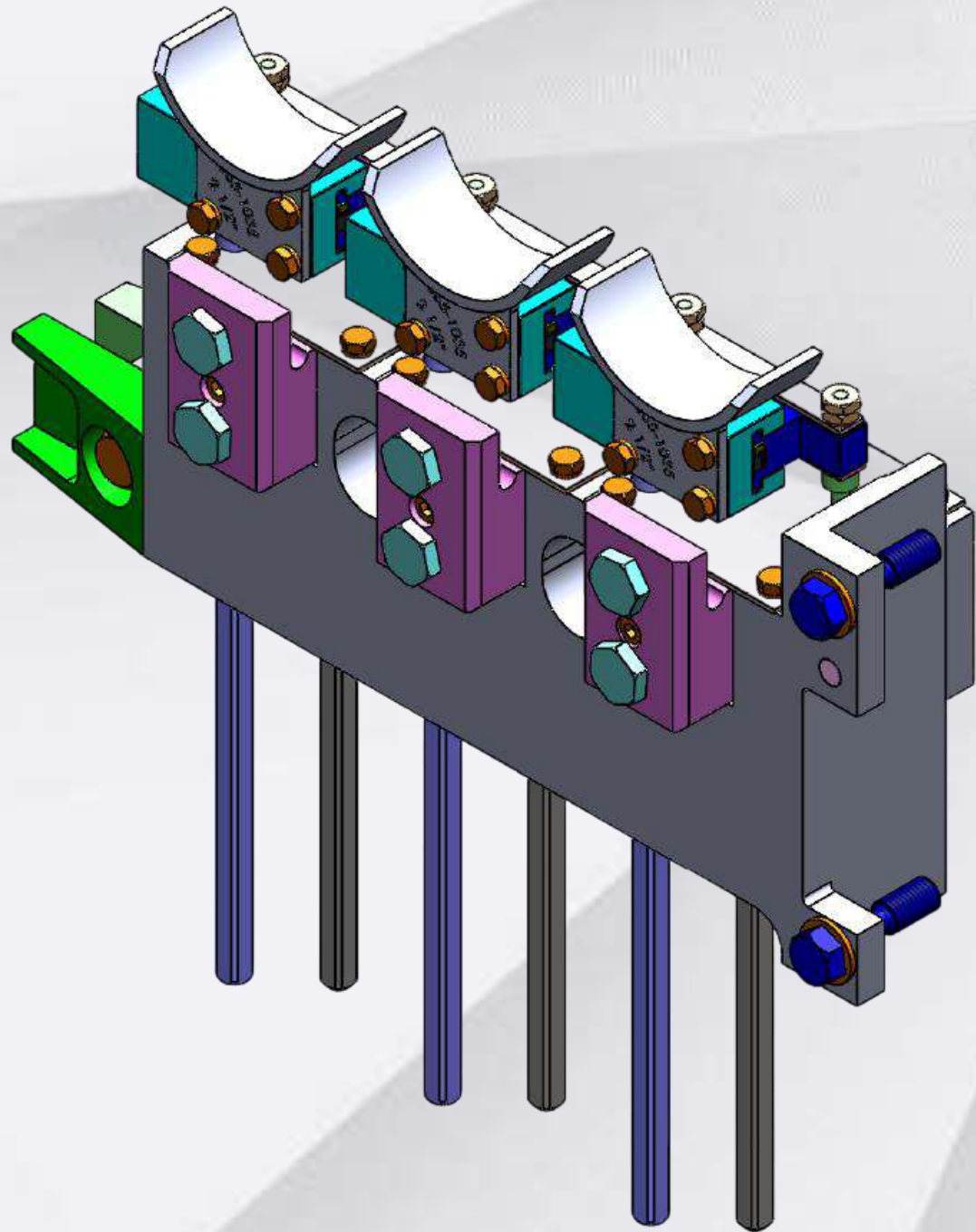


- PARÇA SAYISI: 46 adet
- $6^{+0,05}_{-0}$  mm
- CNC FREZE, CNC TORNA
- NİTRASYON
- AISI 4140, AISI 304
- DATUM: A

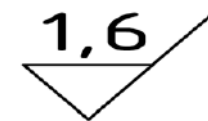
1,6



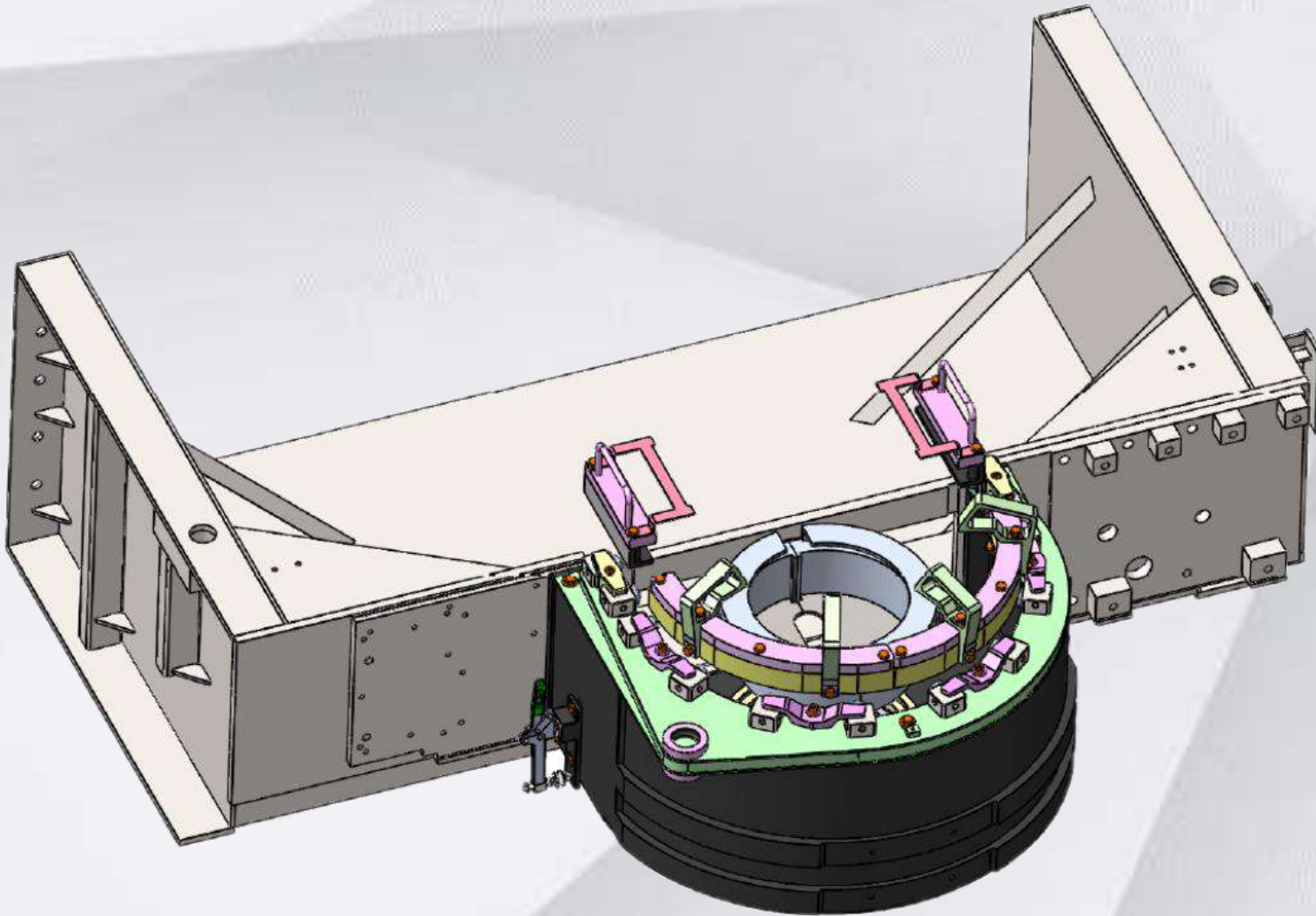
## MAKAS TAMPON MON. 3 DAMLA



- PARÇA SAYISI: 43 adet
- $8^{+0,02}_{-0,02}$  mm
- CNC FREZE, CNC TORNA
- GERİLİM GİDERME
- GGG50, AISI 4140
- DATUM: A,B

 1,6

## SPOUT MEKANİZMASI

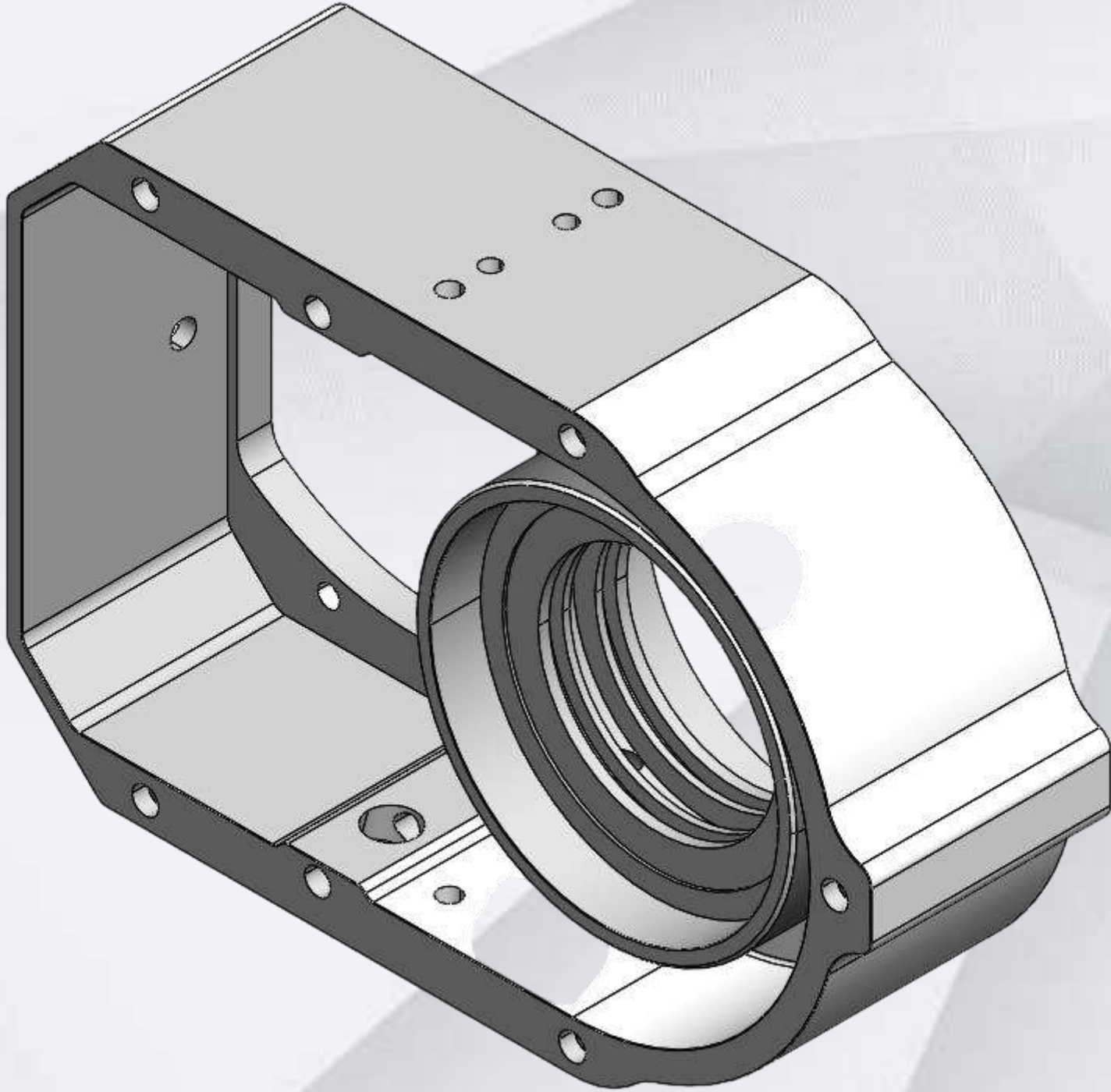


- PARÇA SAYISI: 60 adet
- $16^{+0,05}_{-0}$  mm
- CNC FREZE, CNC TORNA
- ANTİPAS BOYA
- S235JR, AISI 4140
- DATUM: A,B,C

1,6



## YATAK

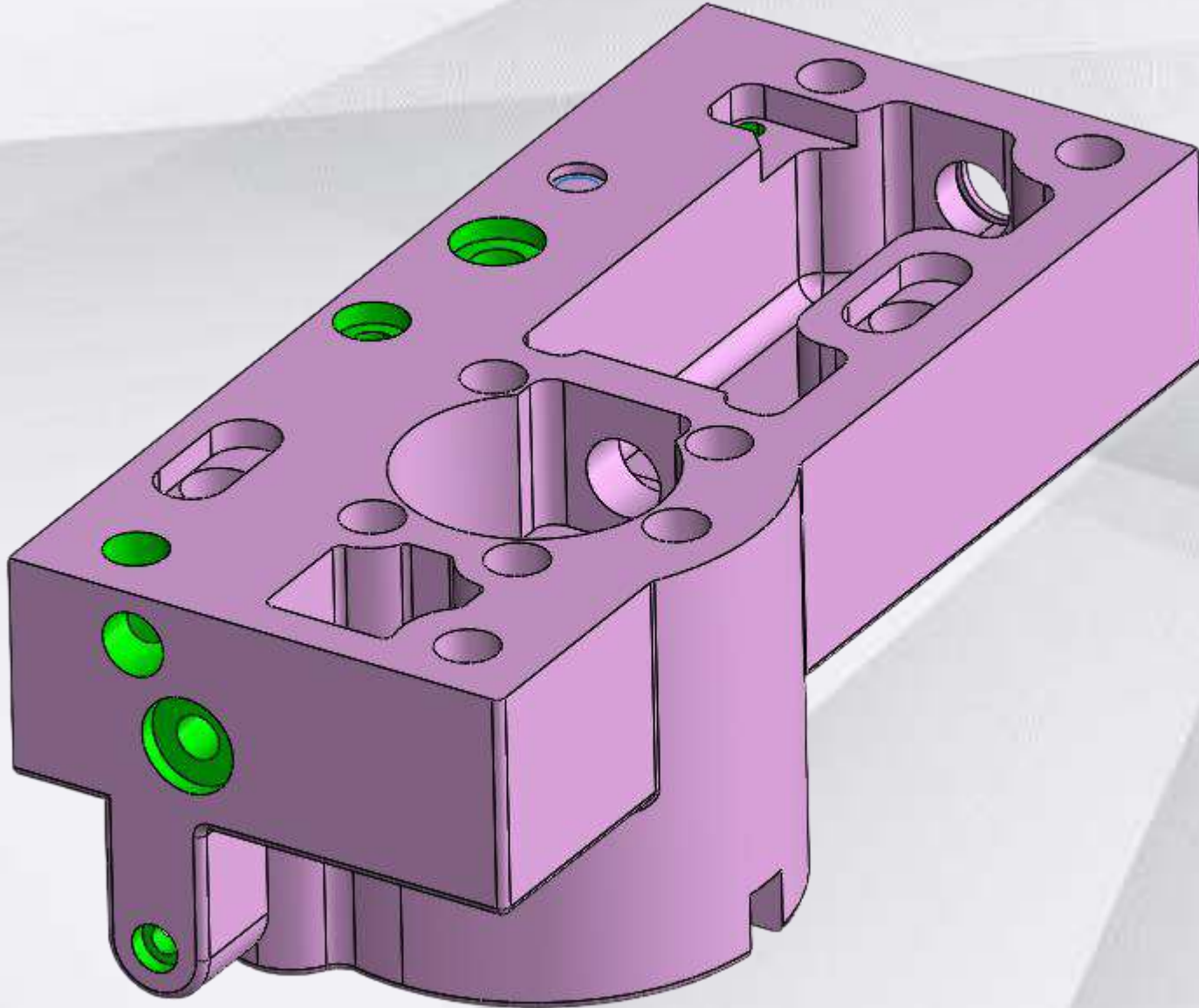


- $\perp 0,03\text{mm}$
- $24 \begin{matrix} +0,009 \\ -0,004 \end{matrix} \text{mm}$
- CNC FREZE,
- NİTRASYON
- AISI 1050
- DATUM: A

1,6



## AYAR PLAKASI

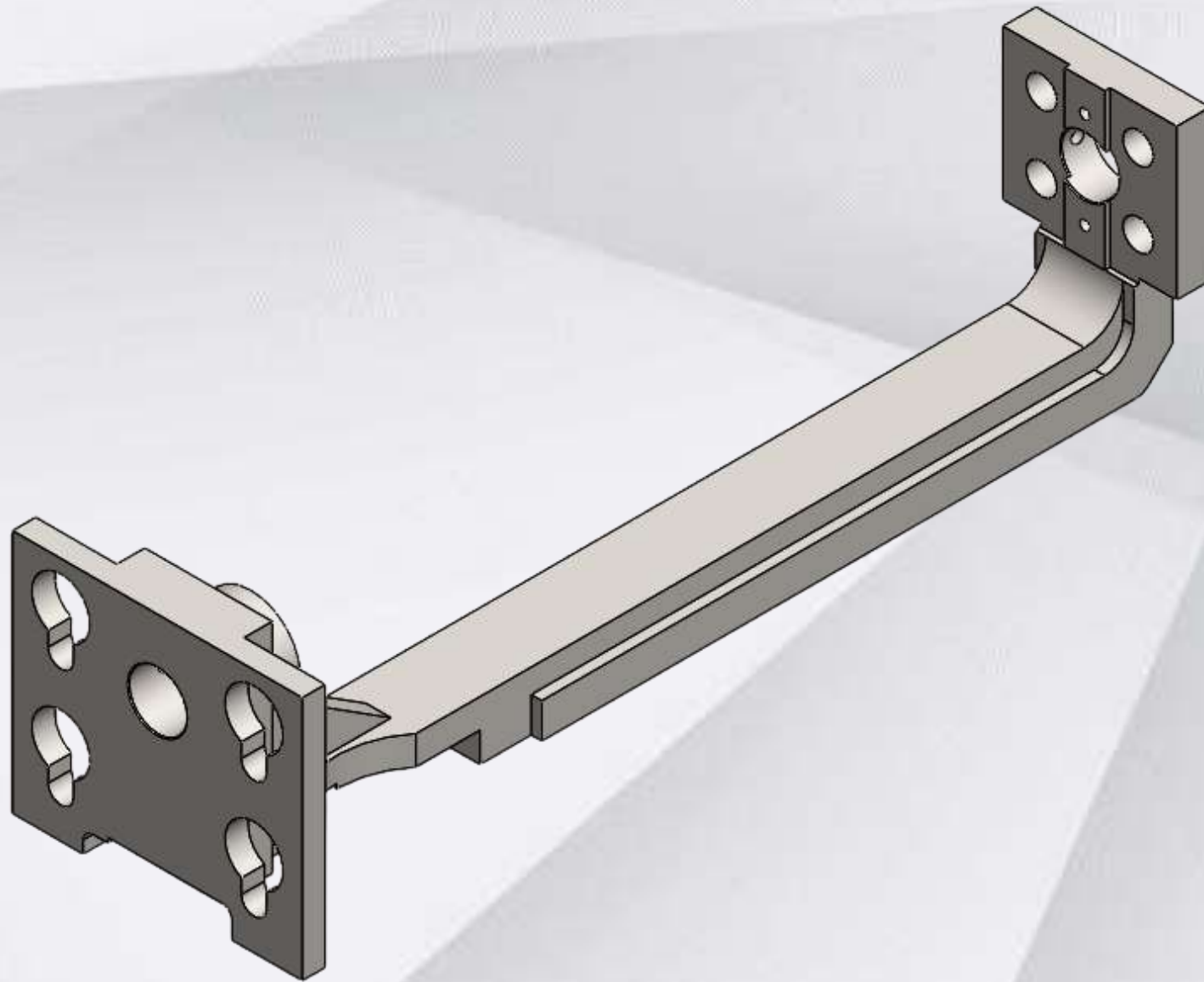


- $\text{© } 0,5\text{mm}$
- $16 \begin{matrix} +0,02 \\ -0,02 \end{matrix} \text{mm}$
- CNC FREZE
- ELOKSAL KAPLAMA
- 7075 T6
- DATUM: A

1,6



## GÖVDE

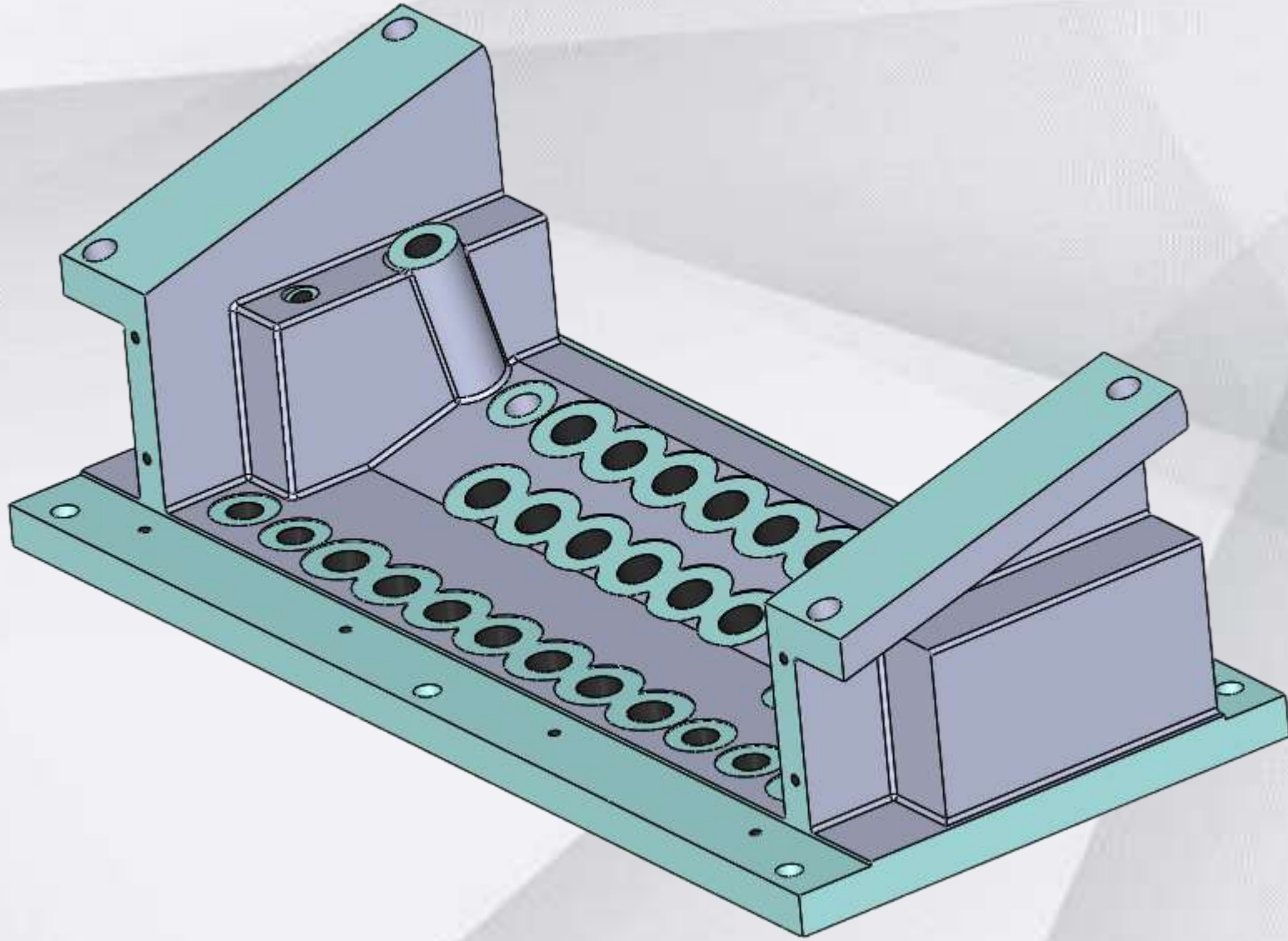


- $\text{◎ } 0,02\text{mm}$
- $40 \begin{matrix} +0 \\ -0,03 \end{matrix} \text{mm}$
- CNC FREZE
- GERİLİM GİDERME
- EN-GJS-400-15
- DATUM: A

1,6



## ADAPTÖR BLOĞU

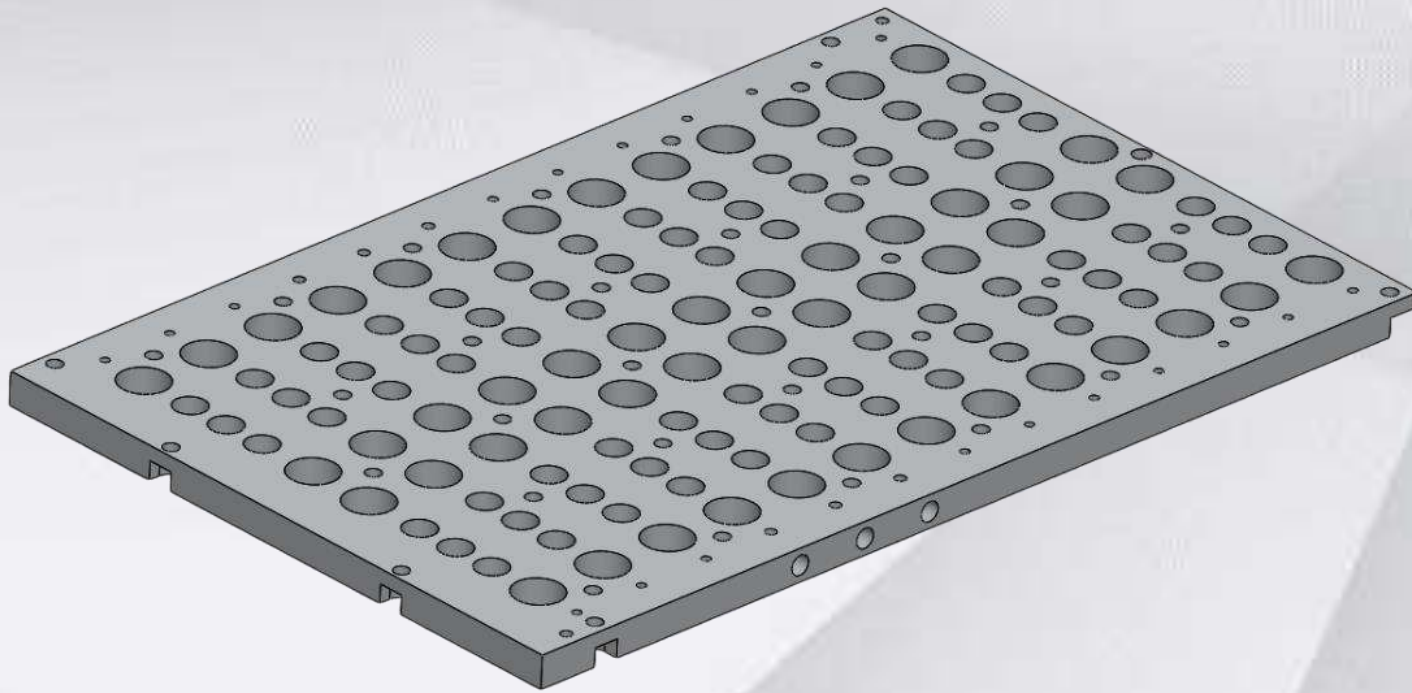


- X
- 32  $\begin{matrix} +0,05 \\ -0,05 \end{matrix}$  mm
- CNC FREZE
- ANTİPAS BOYA
- ETİAL 171
- X

1,6



## VALF PLAKASI

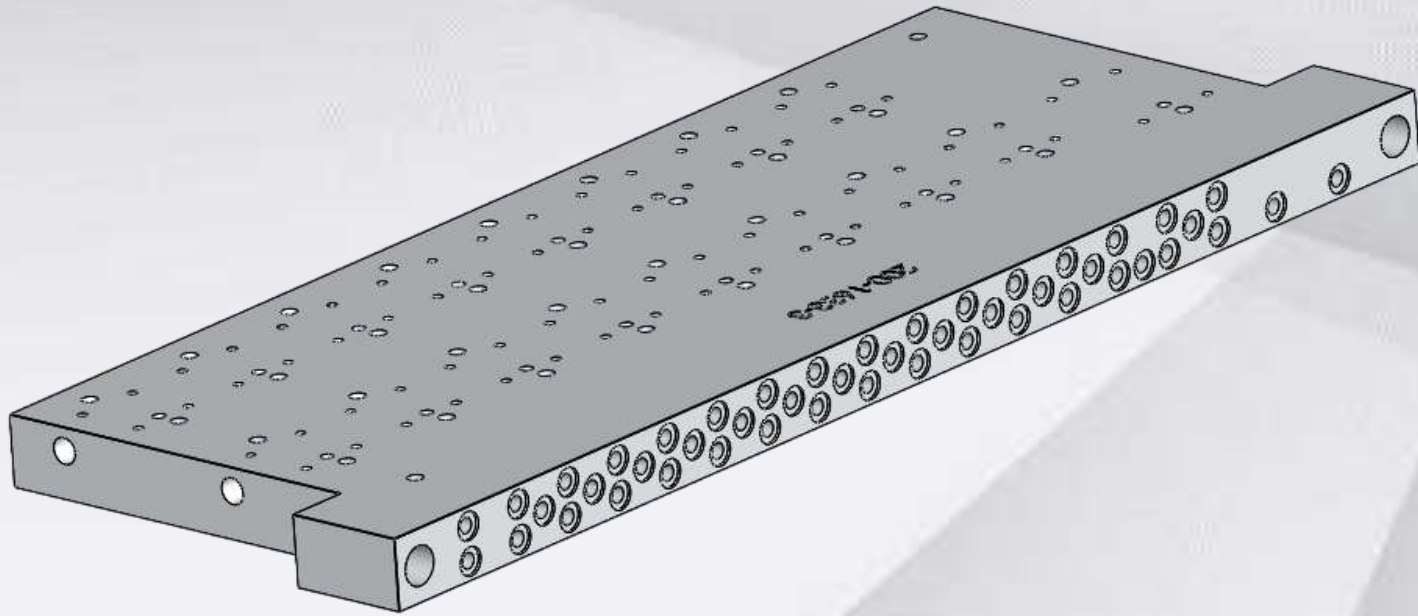


- $\perp$  0,01mm, // 0,03mm
- 15  $\begin{matrix} +0,04 \\ -0,04 \end{matrix}$  mm
- CNC FREZE,
- ELOKSAL KAPLAMA
- 6063 T6
- DATUM: A

1,6



## PLAKA

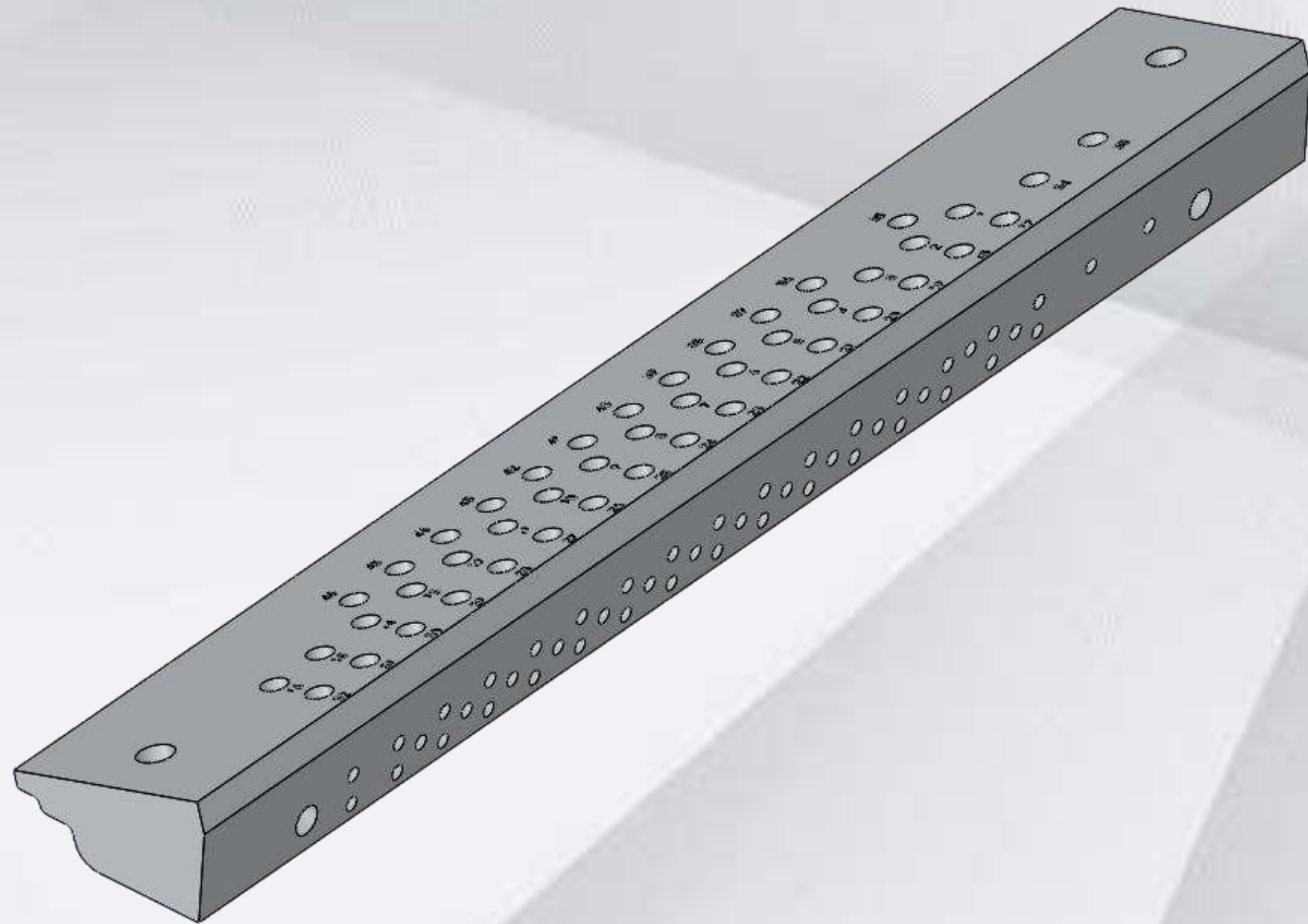


- X
- 44  $\begin{matrix} +0,05 \\ -0,05 \end{matrix}$  mm
- CNC FREZE
- X
- 6063 T6
- X

1,6



## MANİFOLD

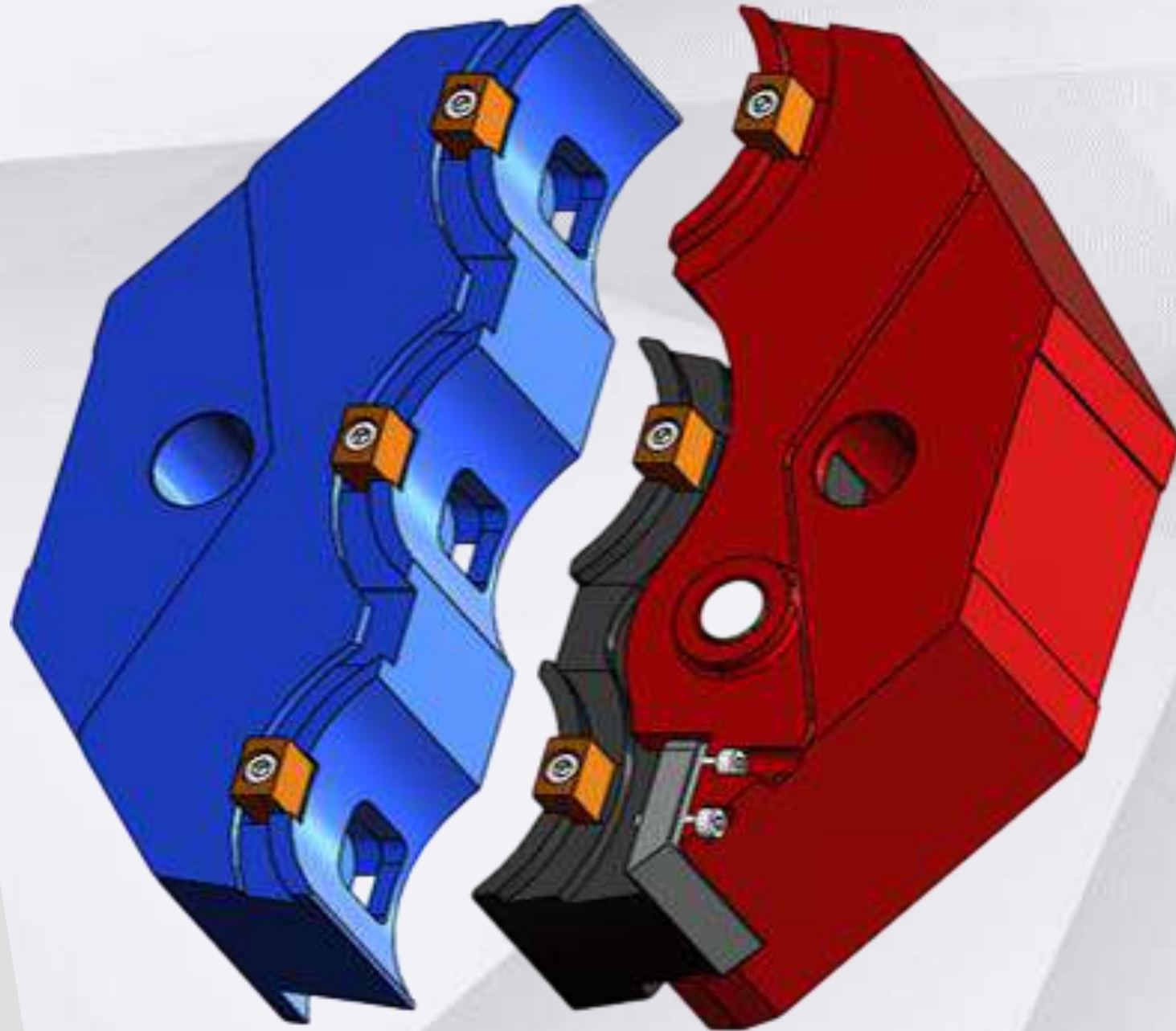


- X
- $12,5 \begin{matrix} +0,02 \\ -0 \end{matrix} \text{ mm}$
- CNC FREZE
- X
- 6063 T6
- X

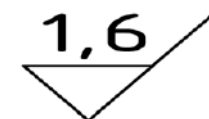
1,6



## KISA İNSERT



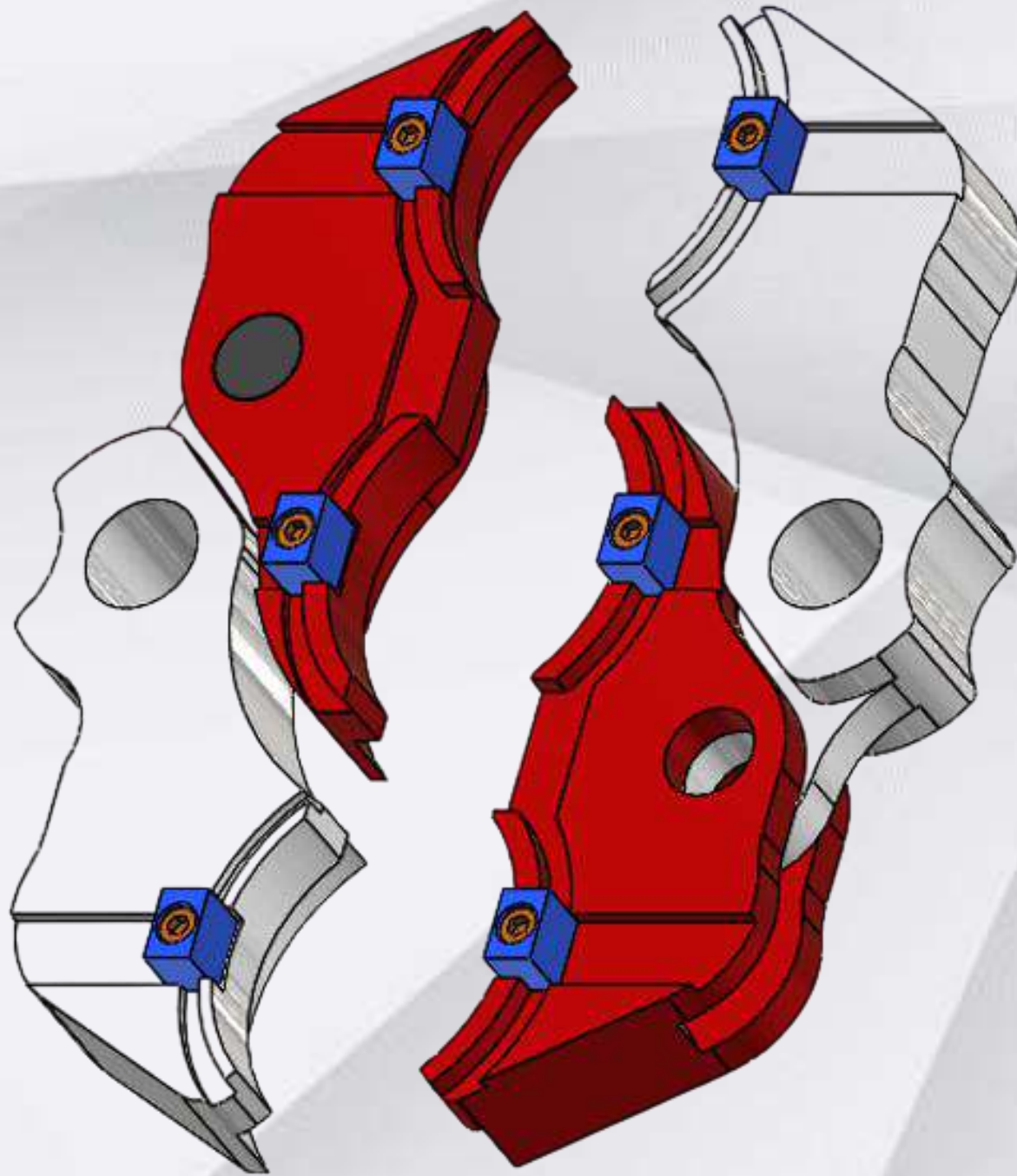
- $\perp 0,03\text{mm}, // 0,01\text{mm}$
- $20^{+0,009}_{-0,004}\text{mm}$
- CNC FREZE, CNC TORNA
- 48-50 HRC
- EN-GJS-500-7, AISI 304
- 24,6 KG
- DATUM: A,B



1,6



## KISA İNSERT

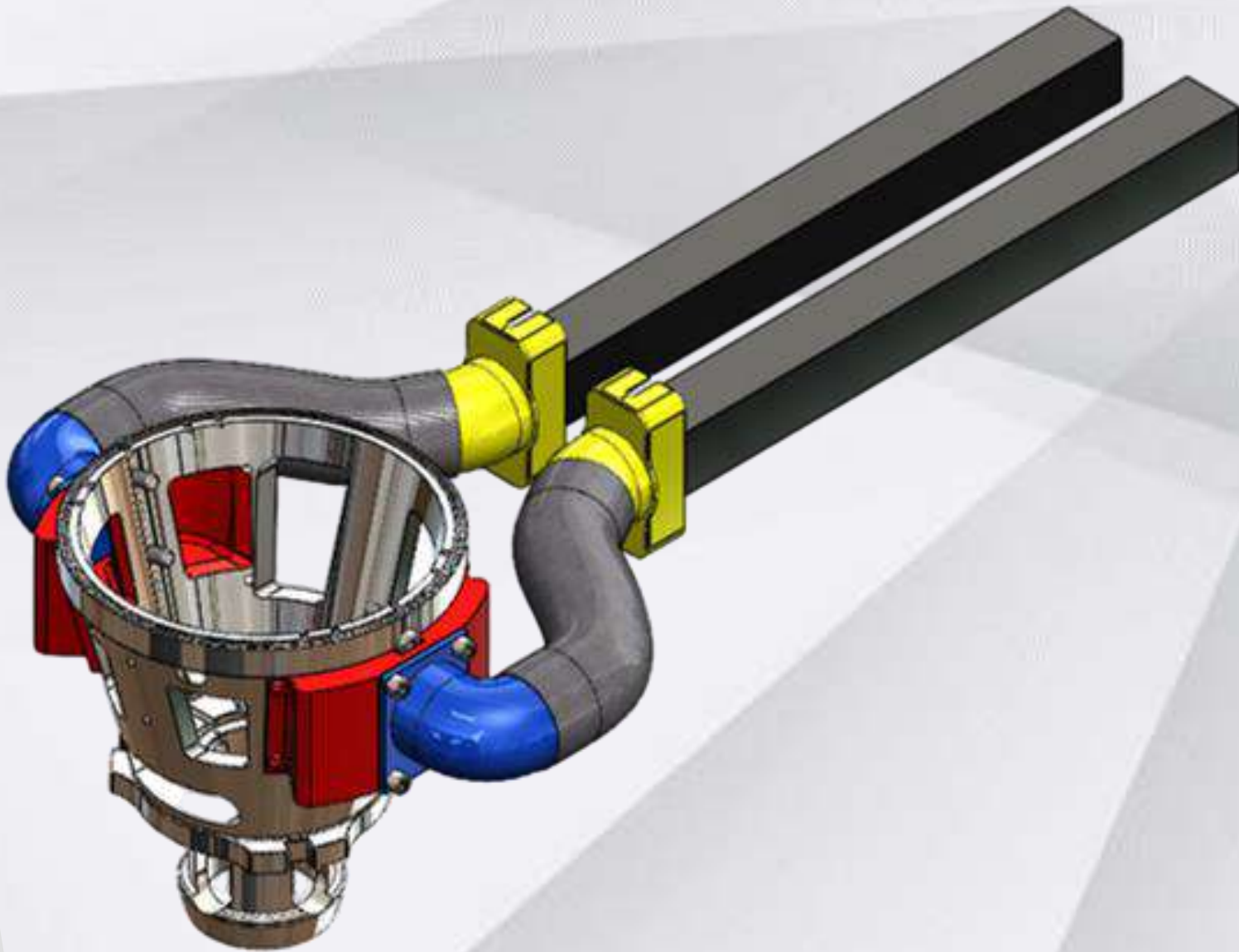


- $\perp 0,01\text{mm}$ ,  $\odot 0,03\text{mm}$
- $24 \begin{matrix} +0,009 \\ -0,004 \end{matrix} \text{mm}$
- CNC FREZE, CNC TORNA
- 48-50 HRC
- EN-GJS-600-3, 42CrMo4
- 7,55 KG
- DATUM: A,B

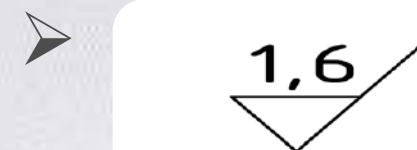
1,6



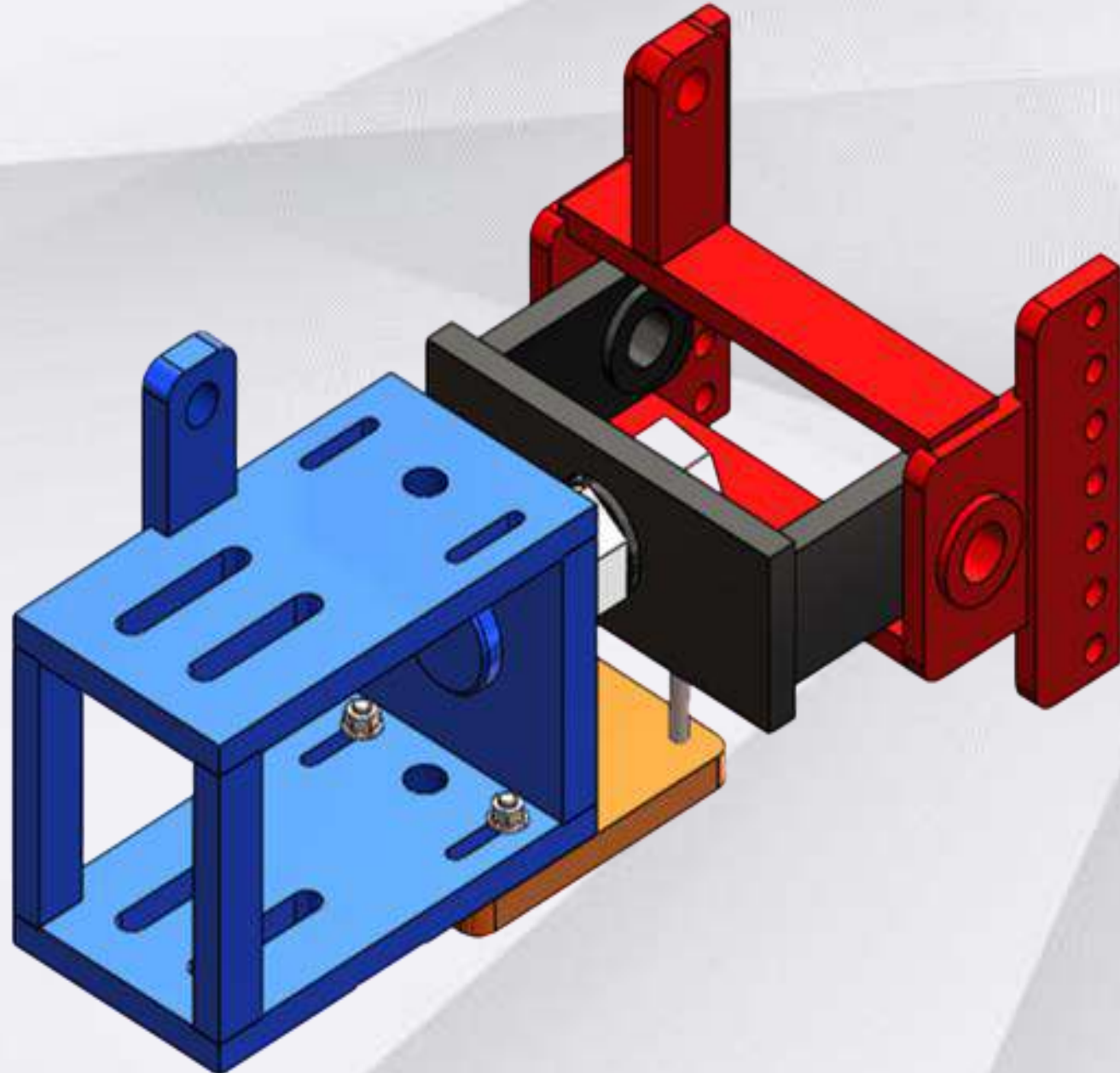
## TULİP SOĞUTMA SİSTEMİ



- $\text{© } 0,03\text{mm}$
- $14,3 \begin{matrix} +0,02 \\ \pm 0 \end{matrix} \text{mm}$
- CNC FREZE, SAC LEV, KAYNAK
- NİTRASYON
- 7075-T6, C45
- 13,49 KG
- DATUM: A,B



## PİSTON AYAR GÖVDESİ



➤ // 0,01mm, © 0,03mm

➤  $20^{+0,018}_{\pm 0}$  mm

➤ CNC FREZE, CNC TORNA

➤ KAYNAK

➤ S355JR, AISI4340

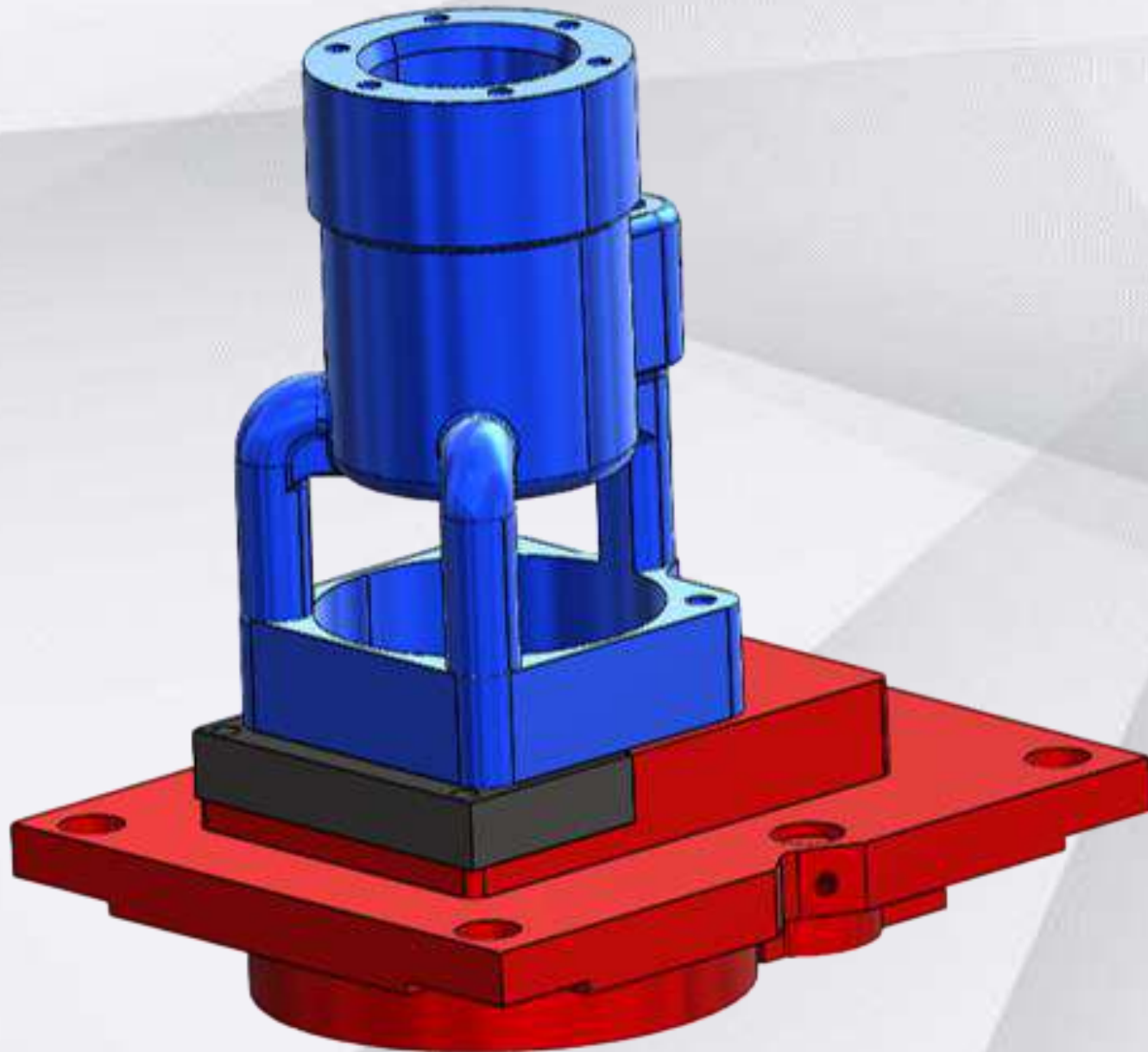
➤ 19,43 KG

➤ DATUM: A

➤  $1,6$



## ON OFF VALF İKİLİ GÖVDE G-2 TİPİ



➤ // 0,02mm, © 0,015mm

➤  $19,05^{+0,021}_{\pm 0}$  mm

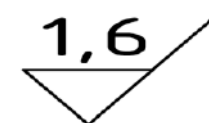
➤ CNC FREZE, CNC TORNA

➤ GERİLİM GİDERME

➤ GGG40, GGG50

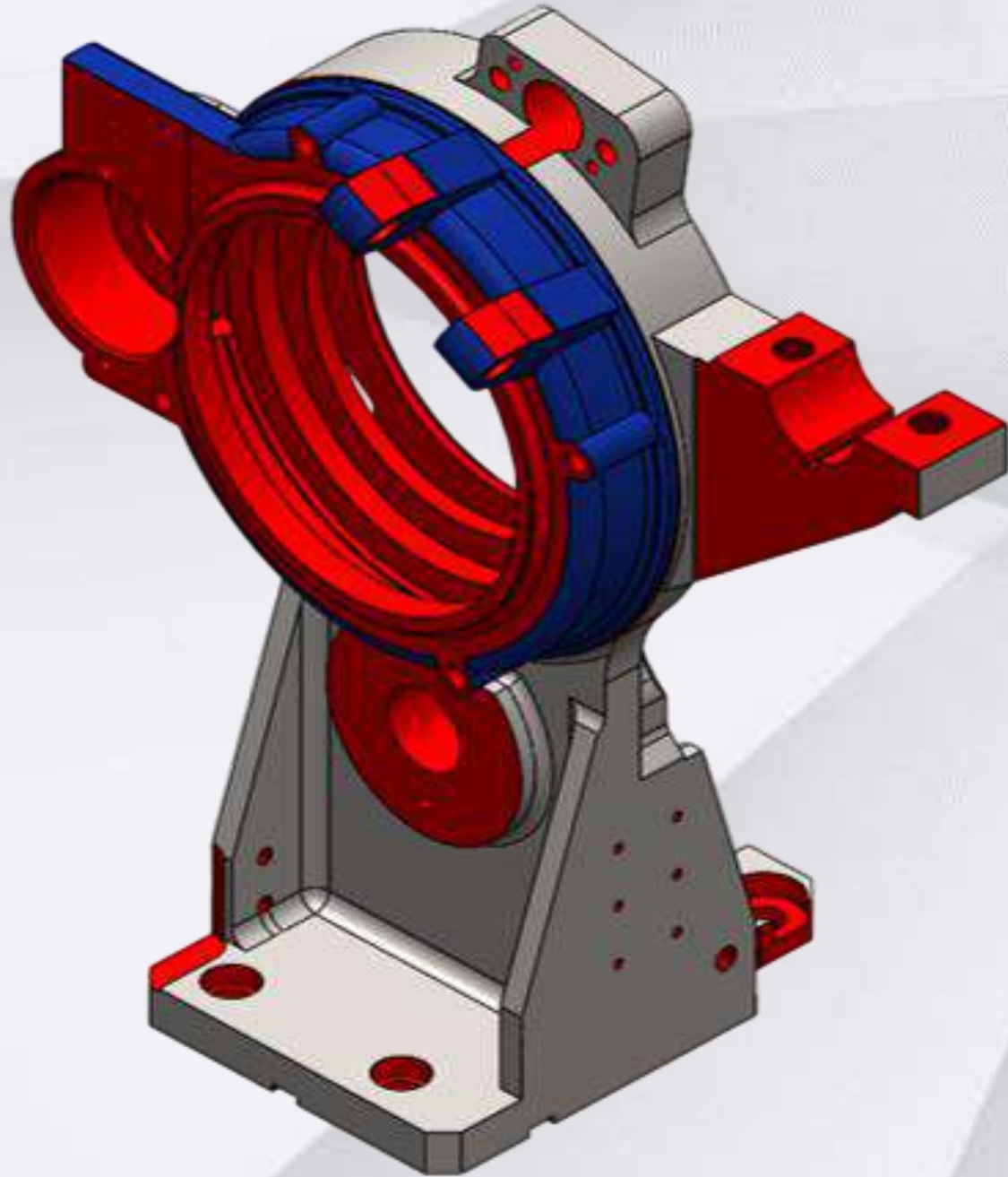
➤ 6,03 KG

➤ DATUM: A,B

➤ 



## MULDEBAG KONSOLU



➤  $\perp$  0,01mm, // 0,01mm

➤  $6^{+0,025}_{\pm 0}$  mm

➤ CNC FREZE

➤ APARATLI ÜRETİM

➤ GGG50

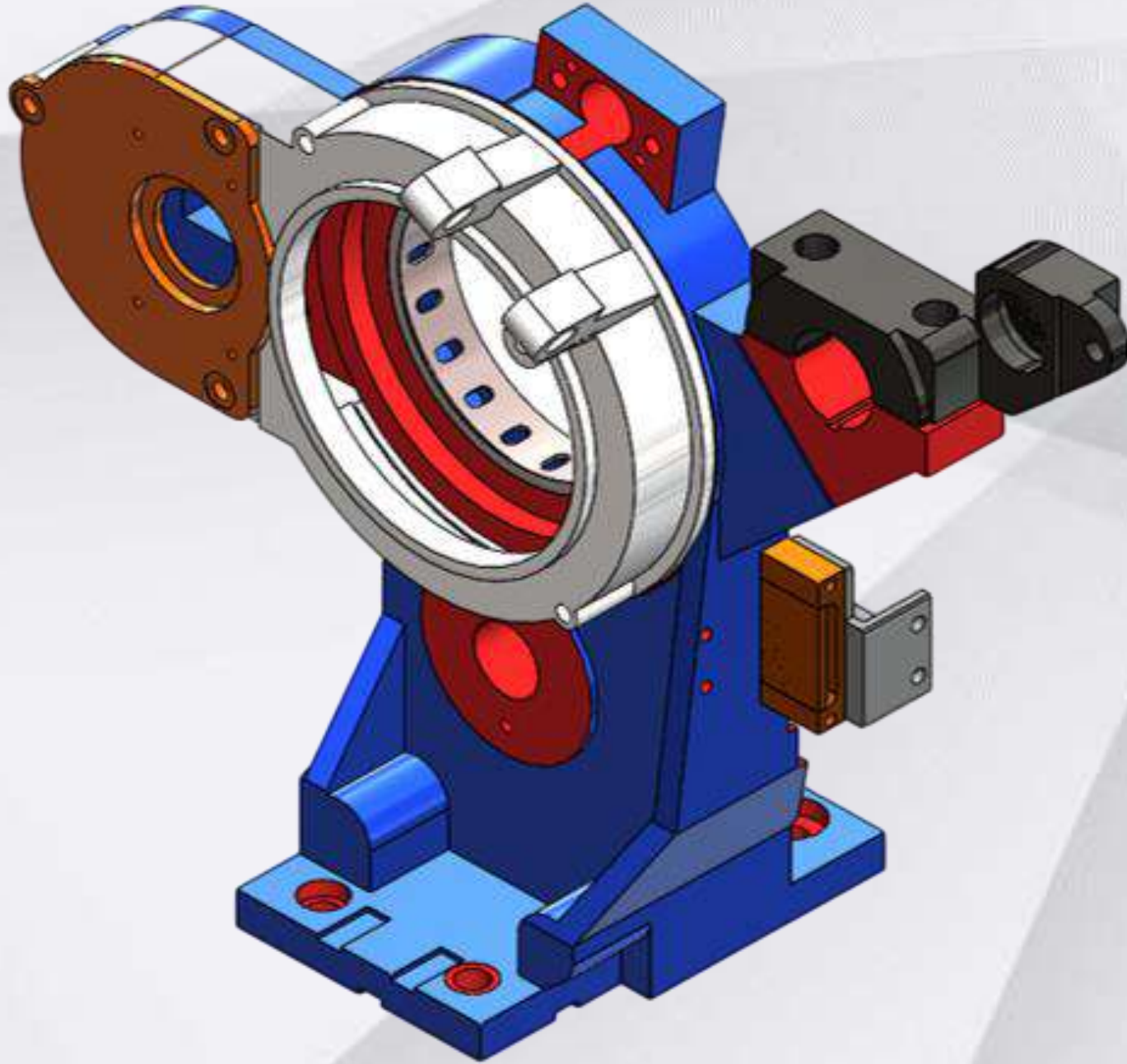
➤ 31,4 KG

➤ DATUM: A,B,C

➤  $1,6$



## MULDEBAG KONSOLU-2



➤  $\perp$  0,01mm, // 0,01mm

➤  $6^{+0,025}_{\pm 0}$  mm

➤ CNC FREZE

➤ APARATLI ÜRETİM

➤ GGG50

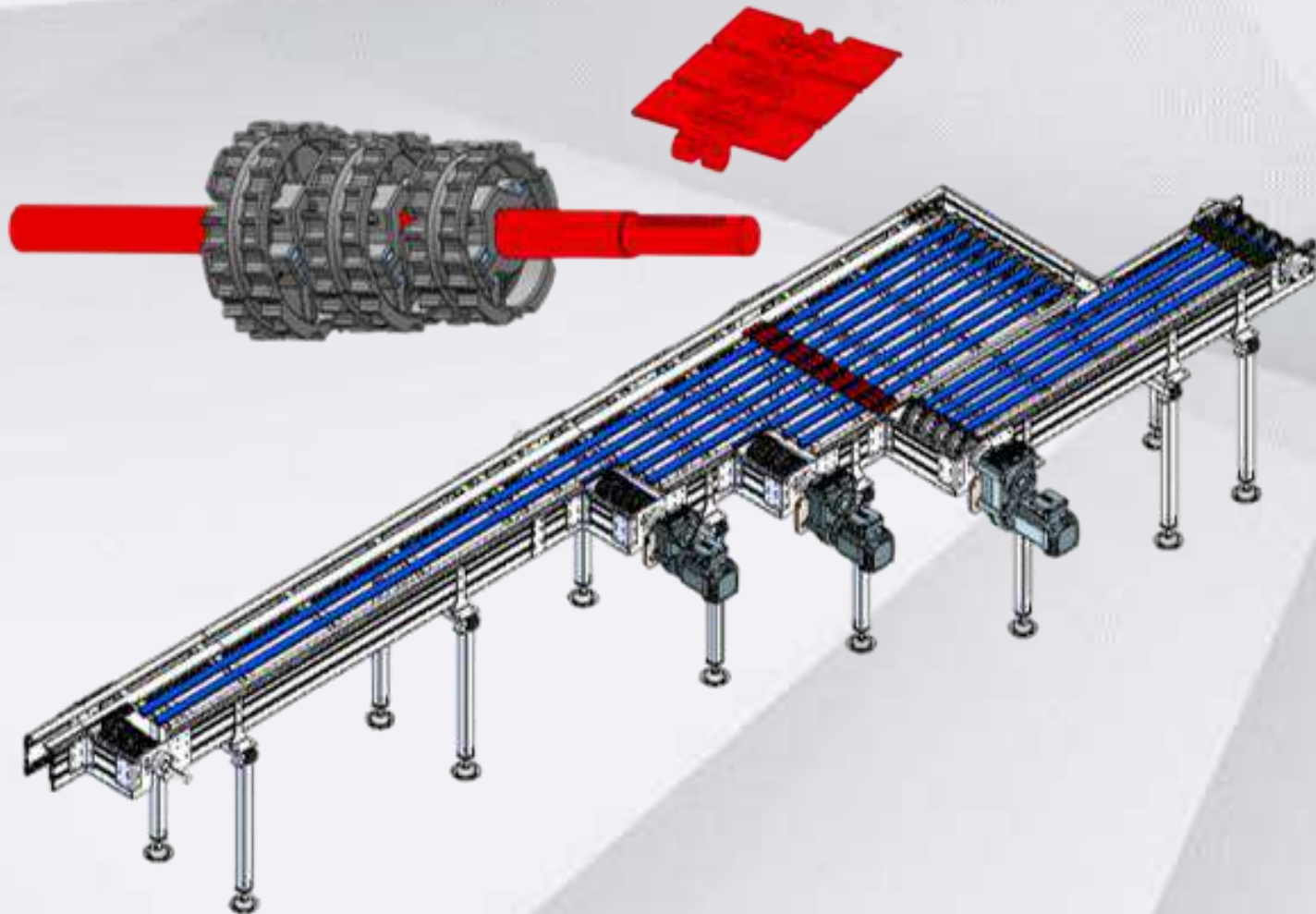
➤ 46,21 KG

➤ DATUM: A,B,C

➤  $1,6$



## ELIGNER KONVEYÖR SİSTEMİ



➤ X

➤ 20  $\begin{matrix} +0,02 \\ \pm 0 \end{matrix}$  mm

➤ X

➤ CNC FREZE, CNC TORNA

➤ ISIL İŞLEM

➤ 6063 T6, AISI 4140

➤ 850 KG, 6m

➤ 1,6



## PAKETLEME VE DOLUM HATTI



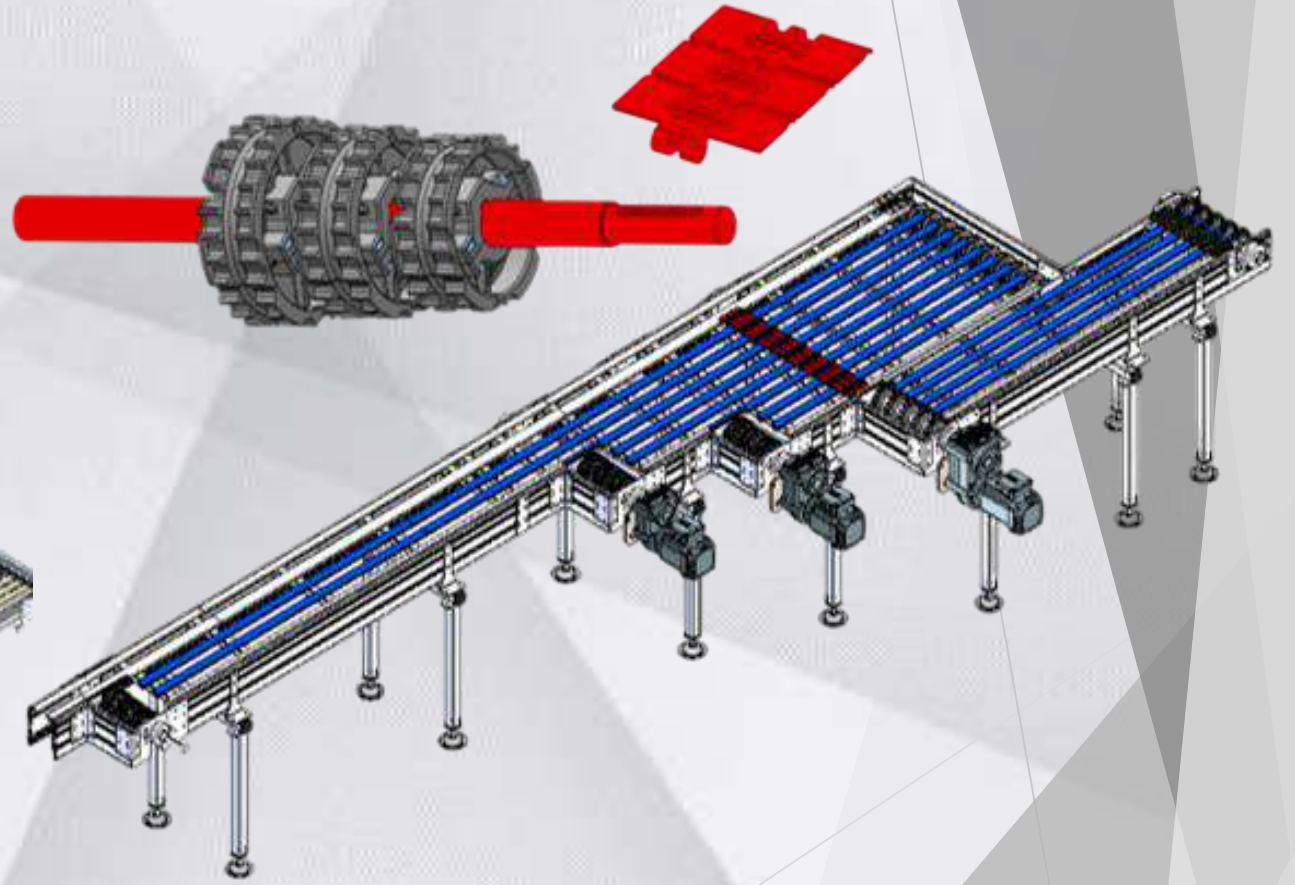
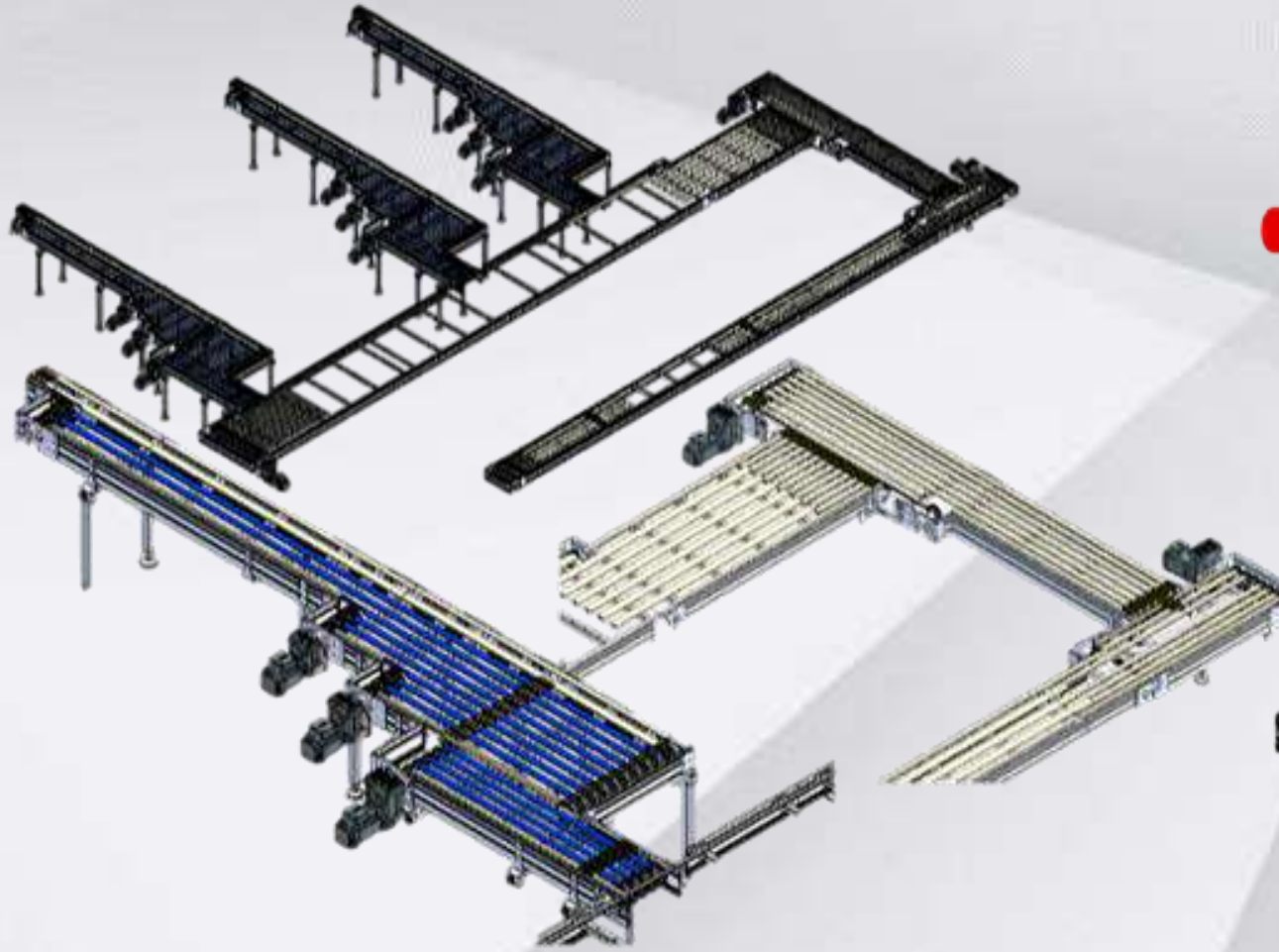
- X
- 20  $\begin{matrix} +0,02 \\ \pm 0 \end{matrix}$  mm
- X
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- 6063 T6, AISI 4140
- 2500 KG, 210m

➤  $\frac{1,6}{\nabla}$

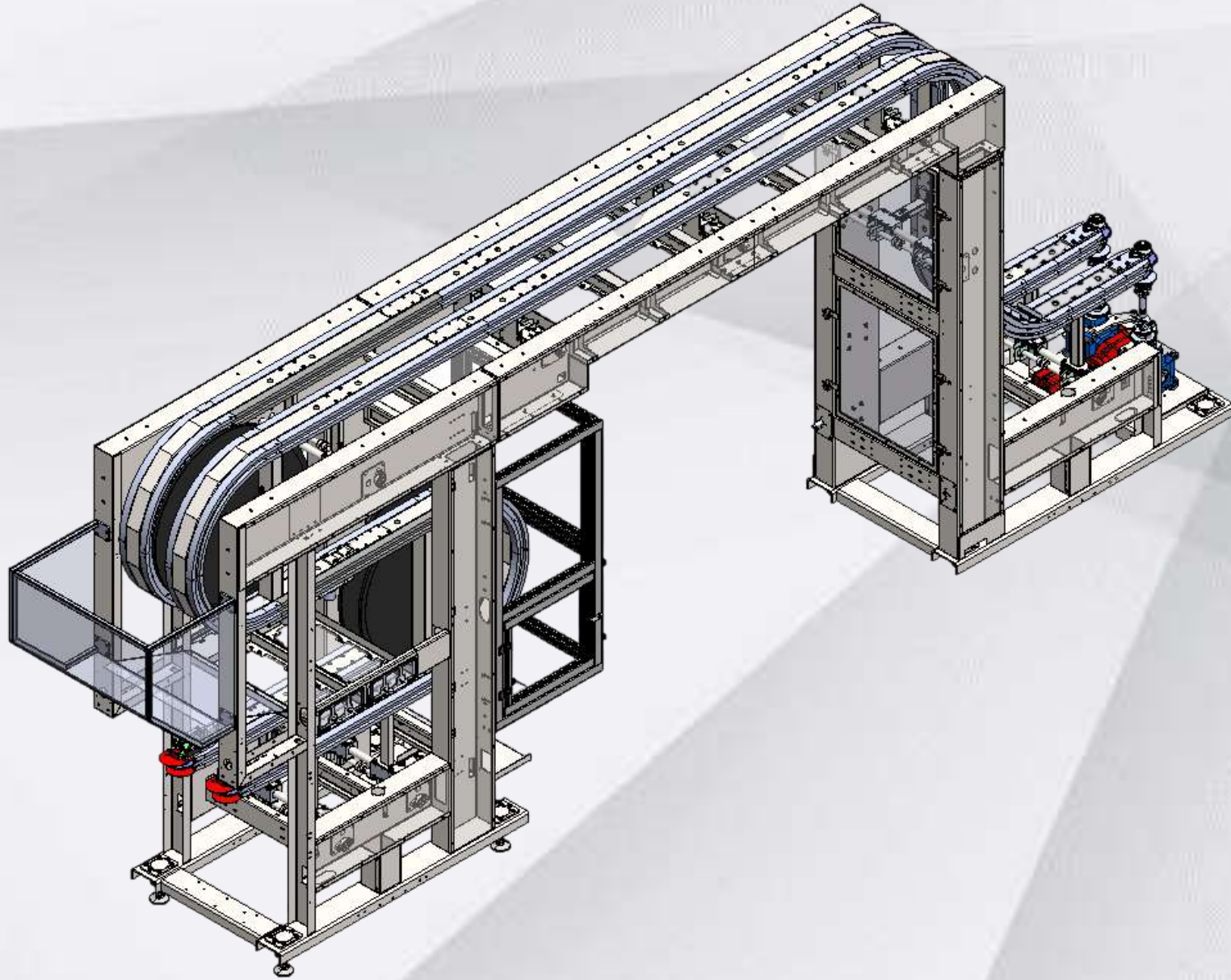


## PAKETLEME VE DOLUM HATTI

## ELIGNER KONVEYÖR SİSTEMİ



## OMEGA HATTI

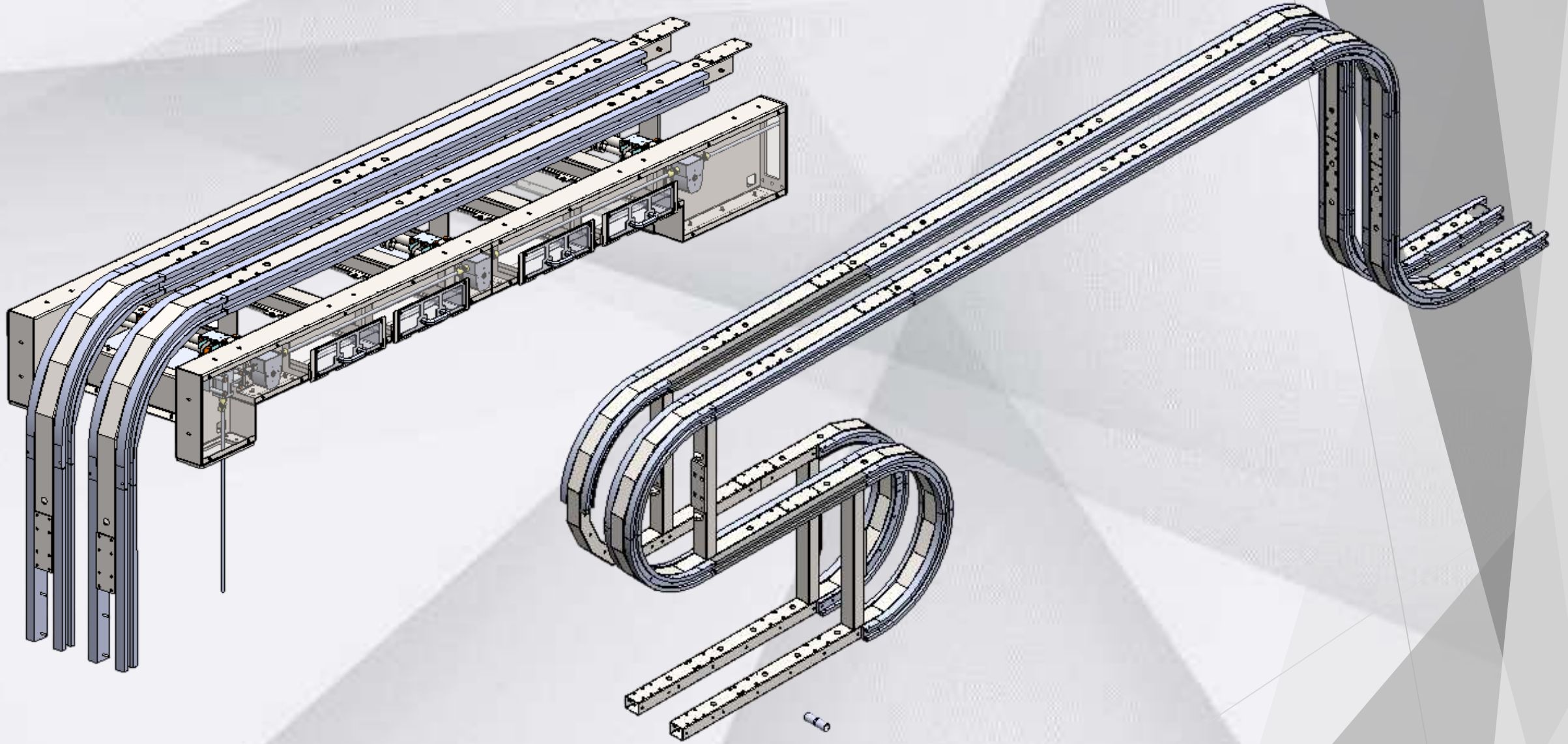


- X
- 12  $\begin{matrix} +0,01 \\ \pm 0,01 \end{matrix}$  mm
- X
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- S235JR, AISI 4140
- 1300KG, 6m

1,6



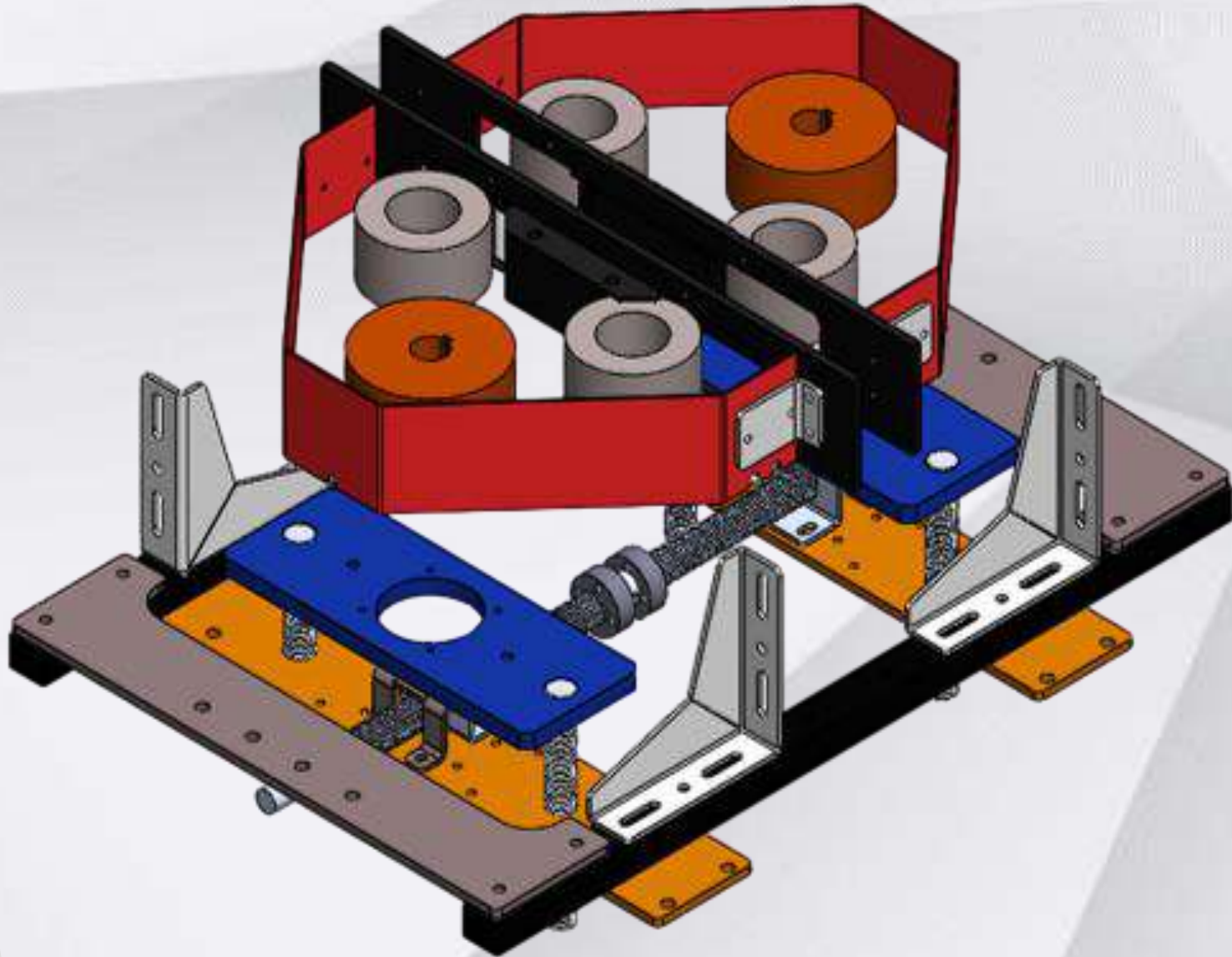
## ZİNCİR HATTI



## DAMLA BORULARI



## SEPERATOR MONTAJ

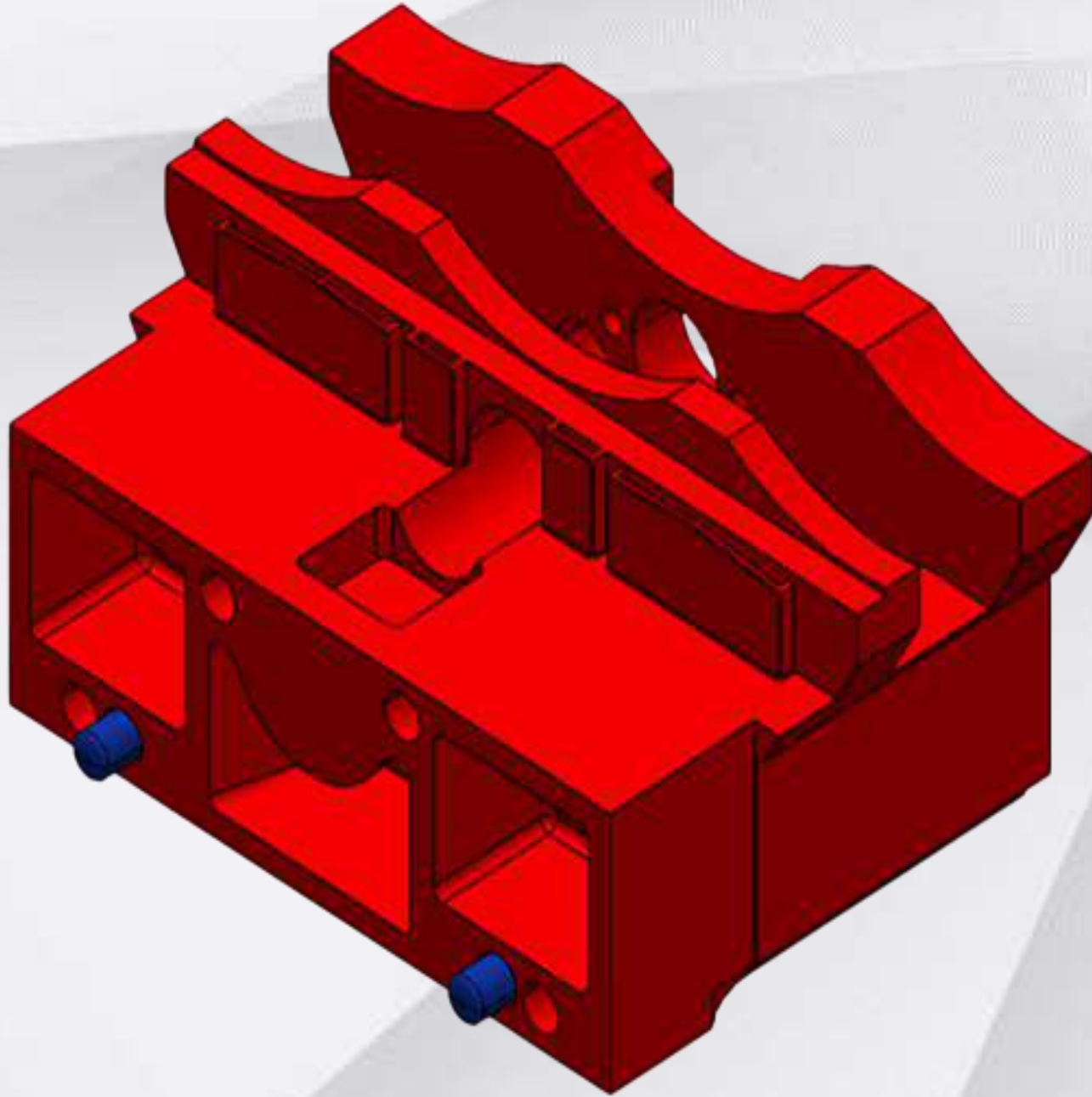


- X
- 16  $\begin{matrix} +0,02 \\ -0,02 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- SAC LEVHA, KAYNAK
- NİTRASYON
- S235JR, AISI 1040
- 47 KG

1,6



## EBÜŞÖR İNSERT HOLDER



➤ // 0,02mm, © 0,015mm

➤ □ 0,02mm

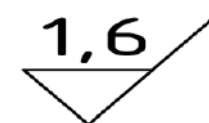
➤ CNC FREZE

➤ NİTRASYON

➤ EN-GJS-600-3

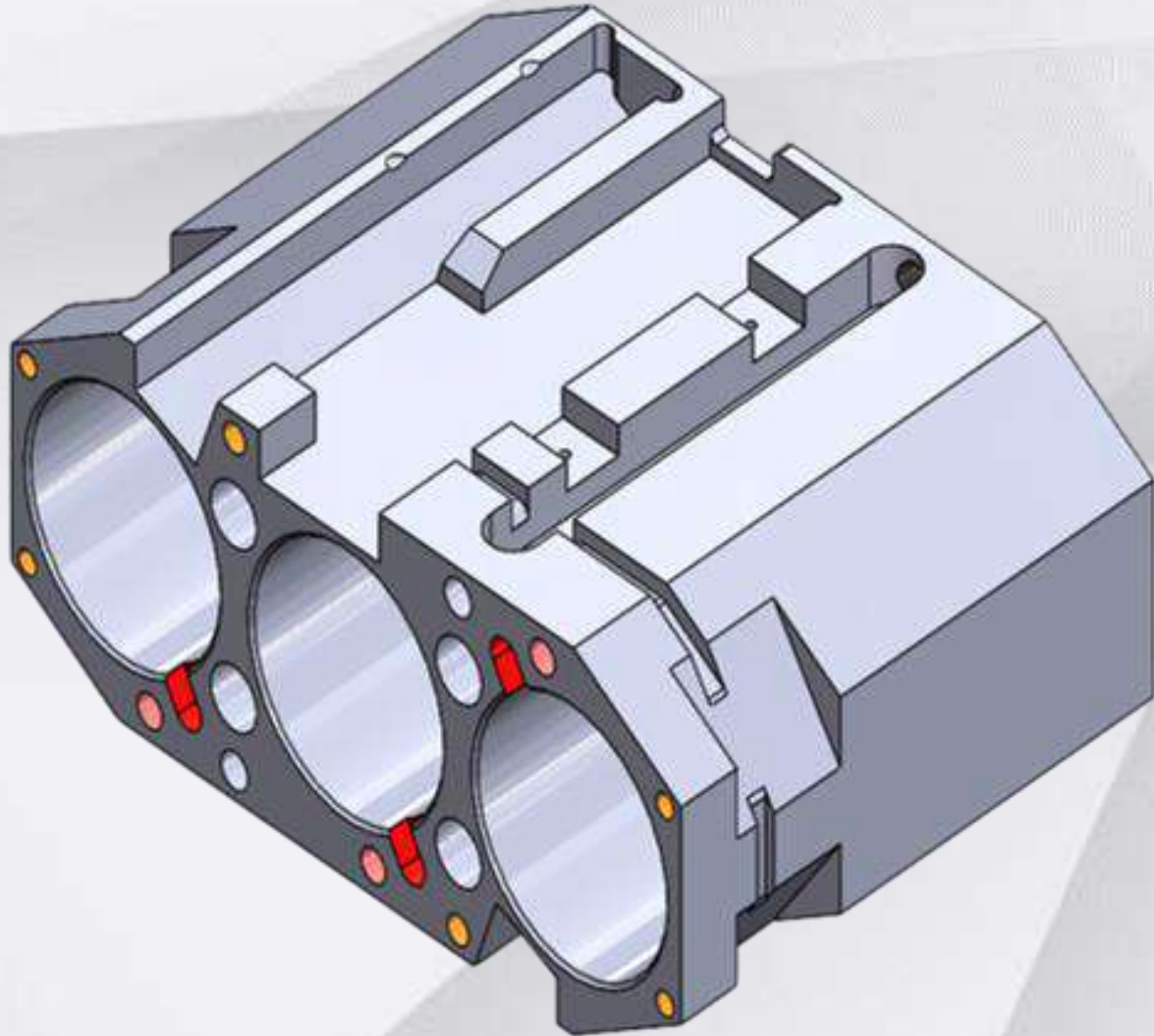
➤ 14,5 KG

➤ DATUM: A,B

➤ 



## GÖMLEK (3 DAMLA)



➤  $\perp$  0,05mm,  $\odot$  0,03mm

➤  $90 \begin{matrix} +0,035 \\ \pm 0 \end{matrix}$  mm

➤ CNC FREZE

➤ ELOKSAL KAPLAMA

➤ 7075-T6

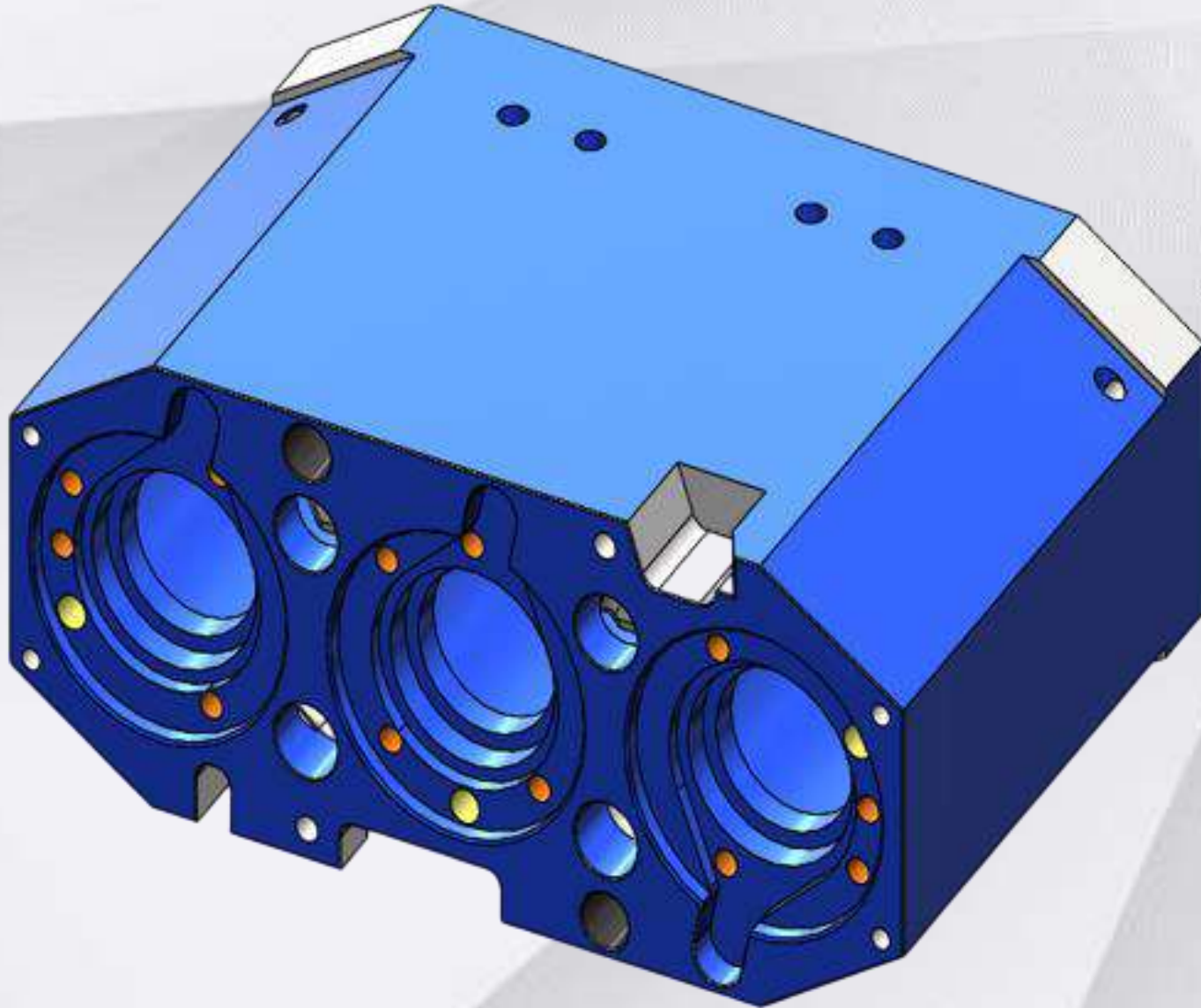
➤ 10,24 KG

➤ DATUM: A,B,C,D,E

➤  $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## 3 DAMLA GÖBEK



➤  $\perp$  0,02mm,  $\odot$  0,01mm

➤ 92  $\begin{matrix} +0,1 \\ +0,05 \end{matrix}$  mm


➤ CNC FREZE

➤ Sa2 KALİTE KUMLAMA

➤ GGG50

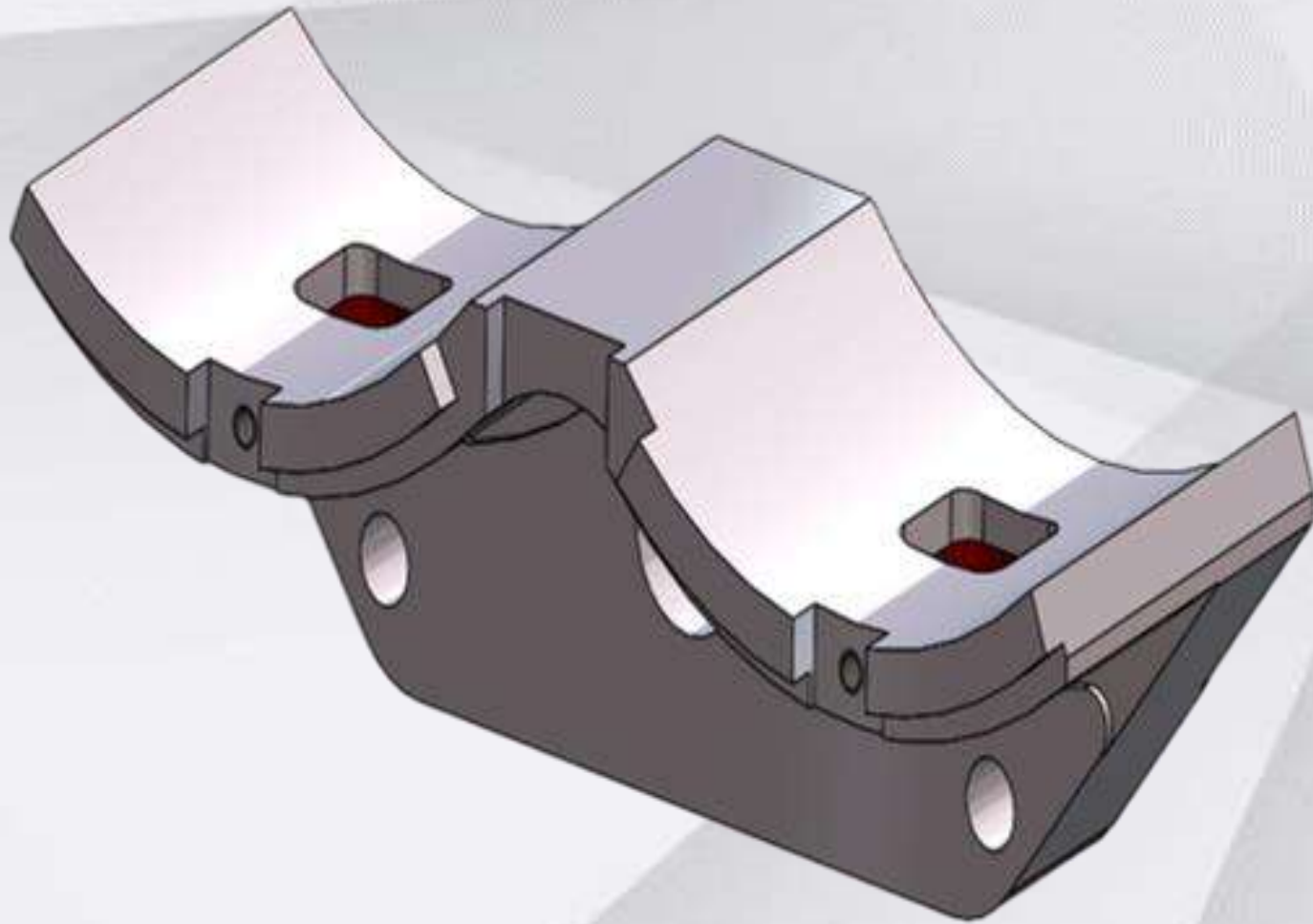
➤ 29,98 KG

➤ DATUM: A,B,C,D

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## 6-5/8 FİNİŞÖR İNSERT



➤  $\perp$  0,03mm, // 0,05mm

➤  $98,5^{+0}_{-0,05}$  mm

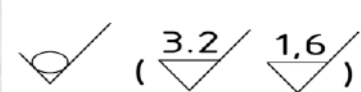
➤ CNC FREZE

➤ X

➤ EN-GJS-500-7

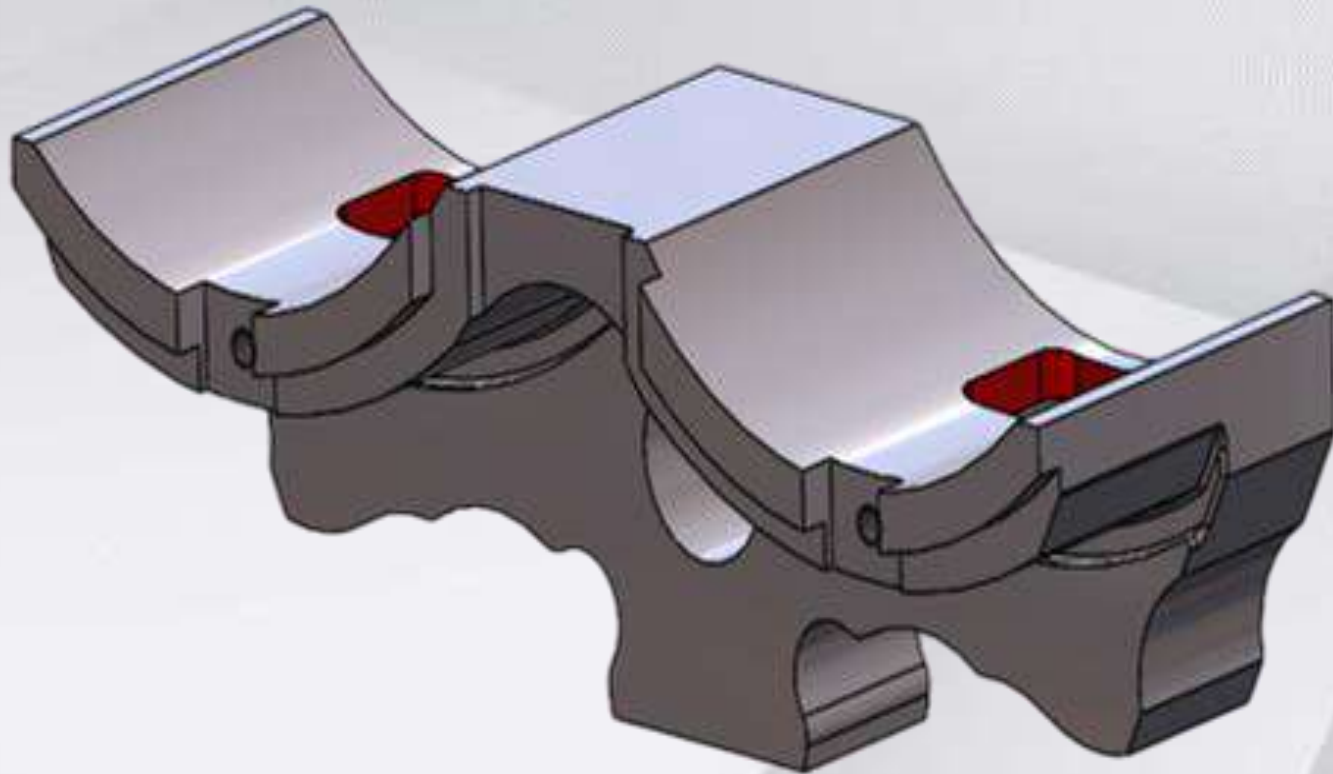
➤ 5,06 KG

➤ DATUM: A

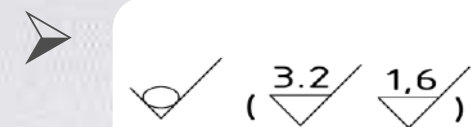
➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## 2 DAMLA İNSERT



- // 0,05mm
- $19^{+0,2}_{+0,1}$  mm
- CNC FREZE
- NİTRASYON
- EN-GJS-500-7
- 4,54 KG
- DATUM: A



## 3 DAMLA İNSERT



➤  $\perp$  0,05mm,  $\odot$  0,03mm

➤  $13^{+0,08}_{+0,05}$  mm

➤ CNC FREZE

➤ NİTRASYON

➤ EN-GJS-500-7

➤ 1,47 KG

➤ DATUM:A

➤  $1,6$



## 3 DAMLA İNSERT



➤  $\perp$  0,03mm, // 0,02mm

➤  $13_{-0,04}^{-0,02}$  mm

➤ CNC FREZE

➤ 50-55 HRC

➤ EN-GJS-600-3

➤ 2,16 KG

➤ DATUM:A

➤  $1,6$



## 3 DAMLA İNSERT



➤  $\perp$  0,05mm,  $\odot$  0,03mm

➤  $13^{+0,08}_{+0,05}$  mm

➤ CNC FREZE

➤ NİTRASYON

➤ EN-GJS-600-3

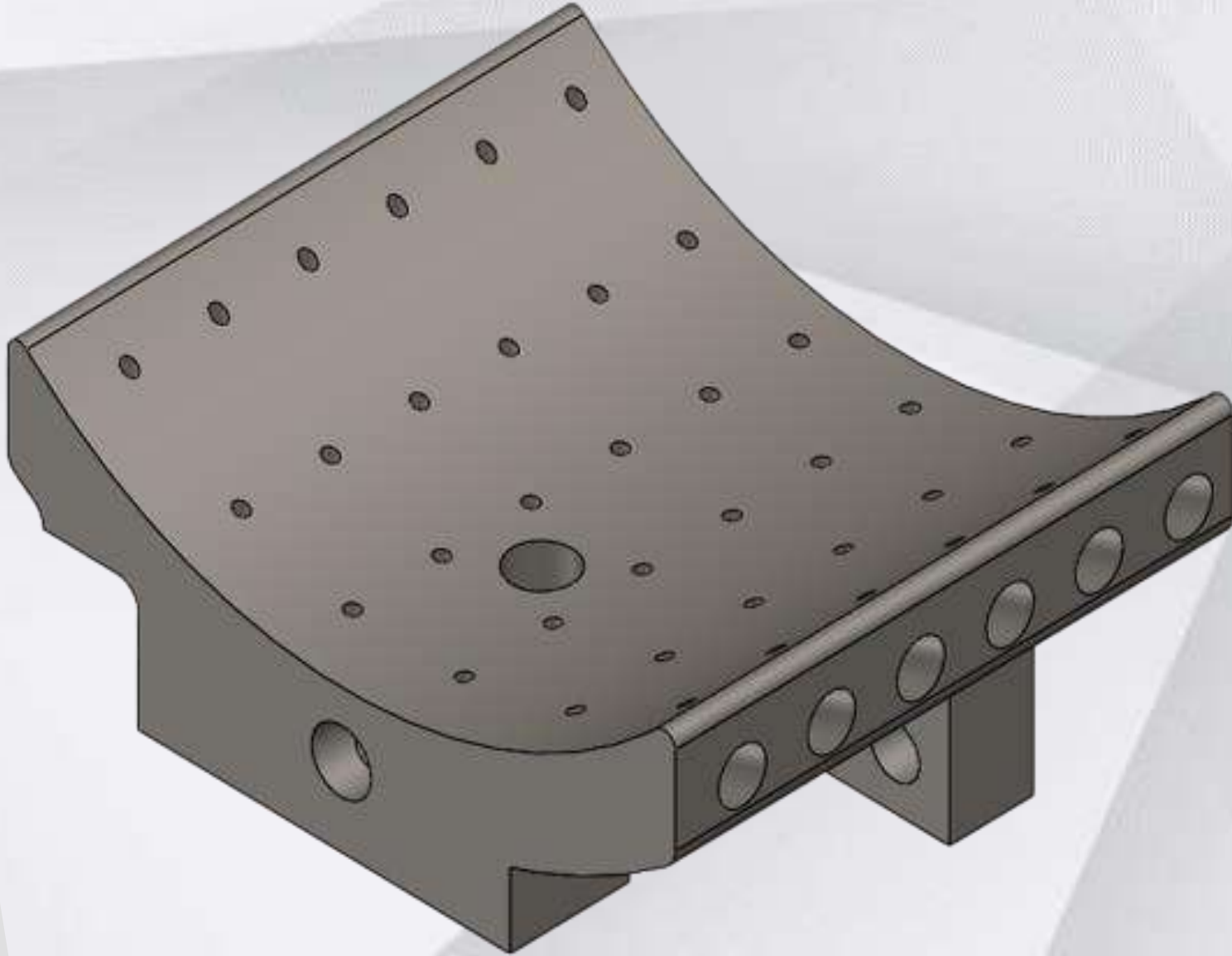
➤ 1,47 KG


➤ DATUM: A

➤  $1,6$



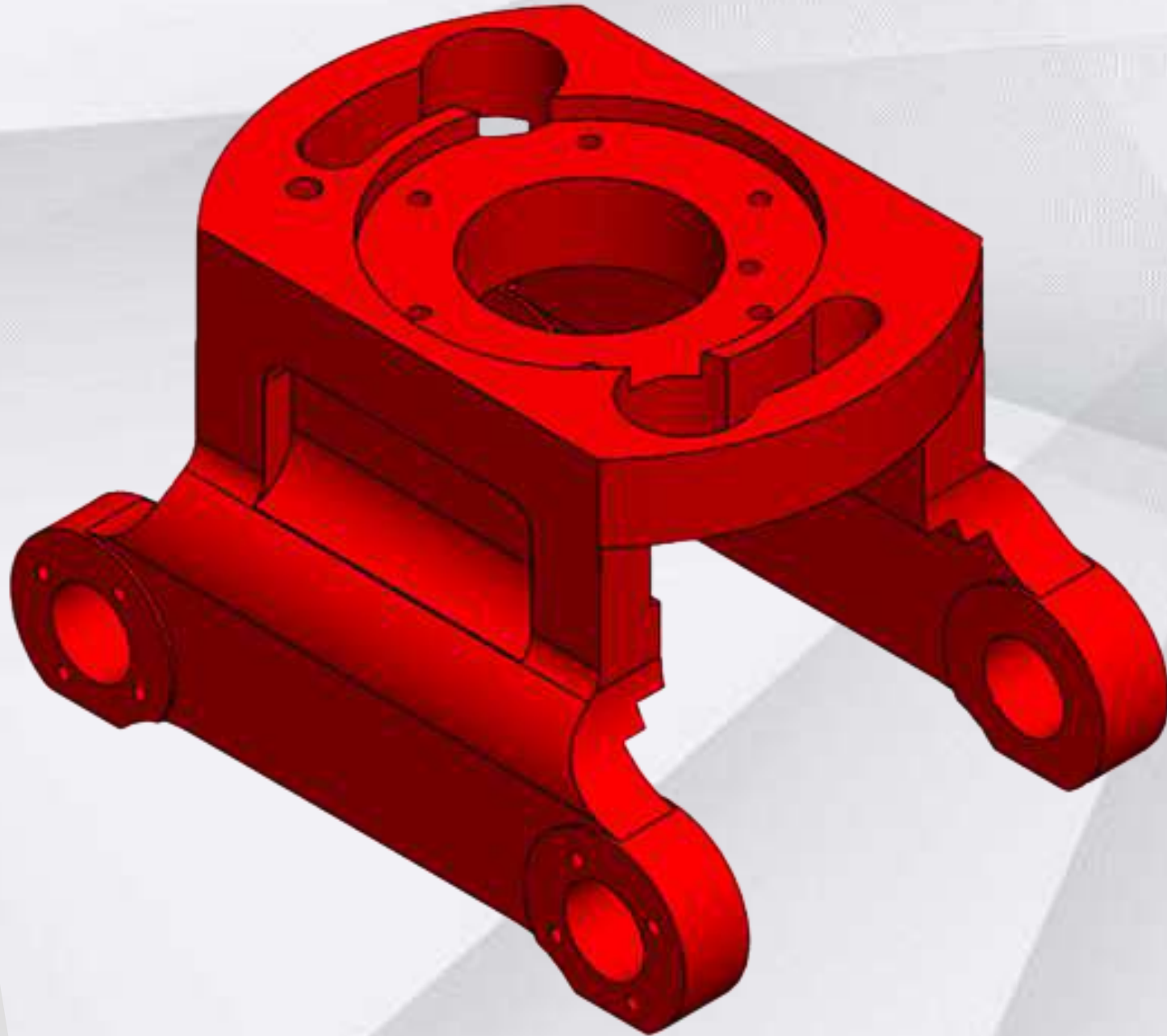
## FİNİSÖR DIŞ SOĞUTMA BLOĞU KISA



- © 0,1mm
- 74,722mm
- CNC FREZE
- X
- BRONZ DÖKÜM RG5
- 0,93 KG
- DATUM: A
- 



## CYLINDER HEAD

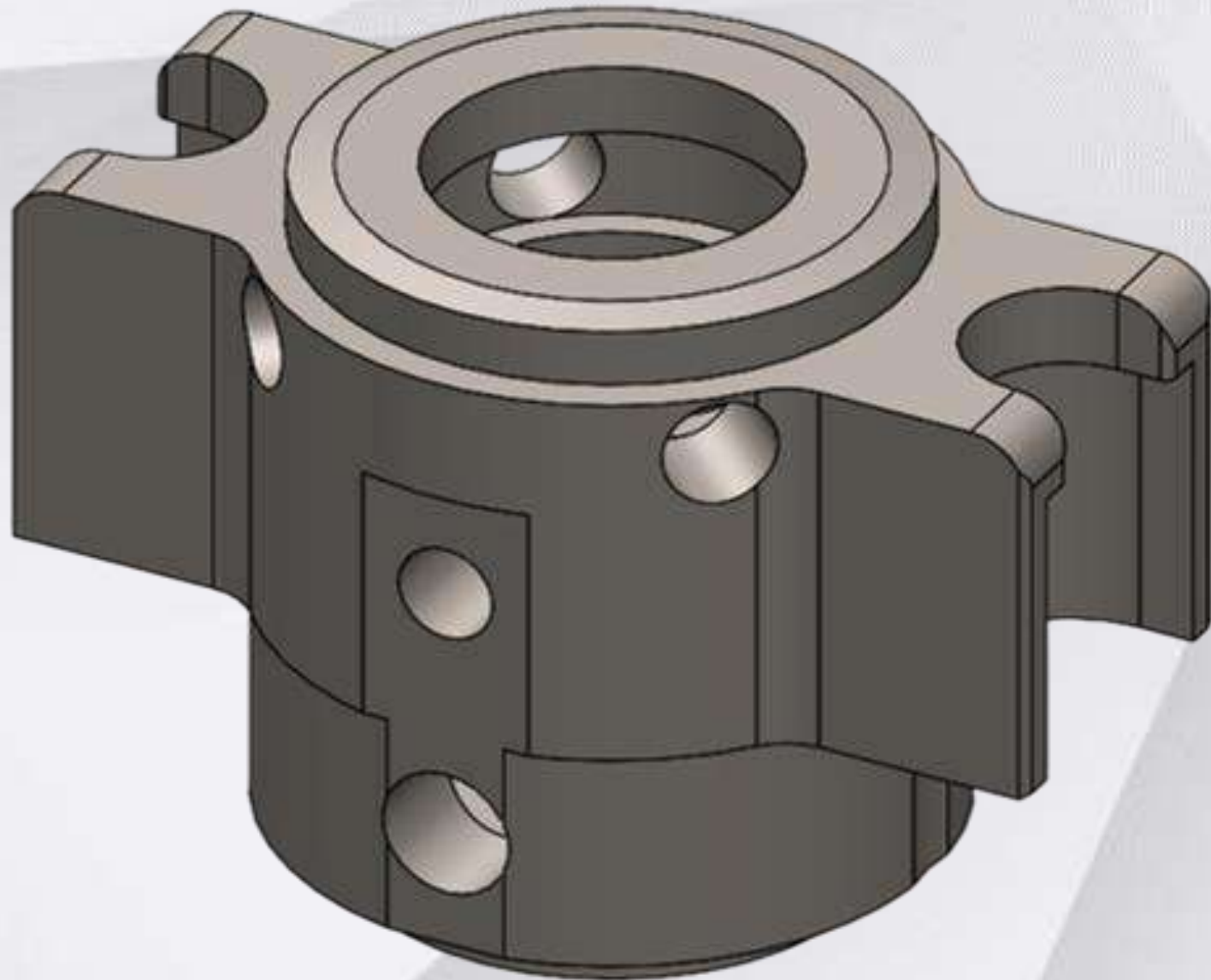


- $\text{© } 0,02\text{mm}$
- $16 \begin{matrix} +0,018 \\ +0,007 \end{matrix} \text{mm}$
- CNC FREZE
- X
- ETİAL 171
- 0,61 KG
- DATUM: A,B

1,6



## ÜST BLOK

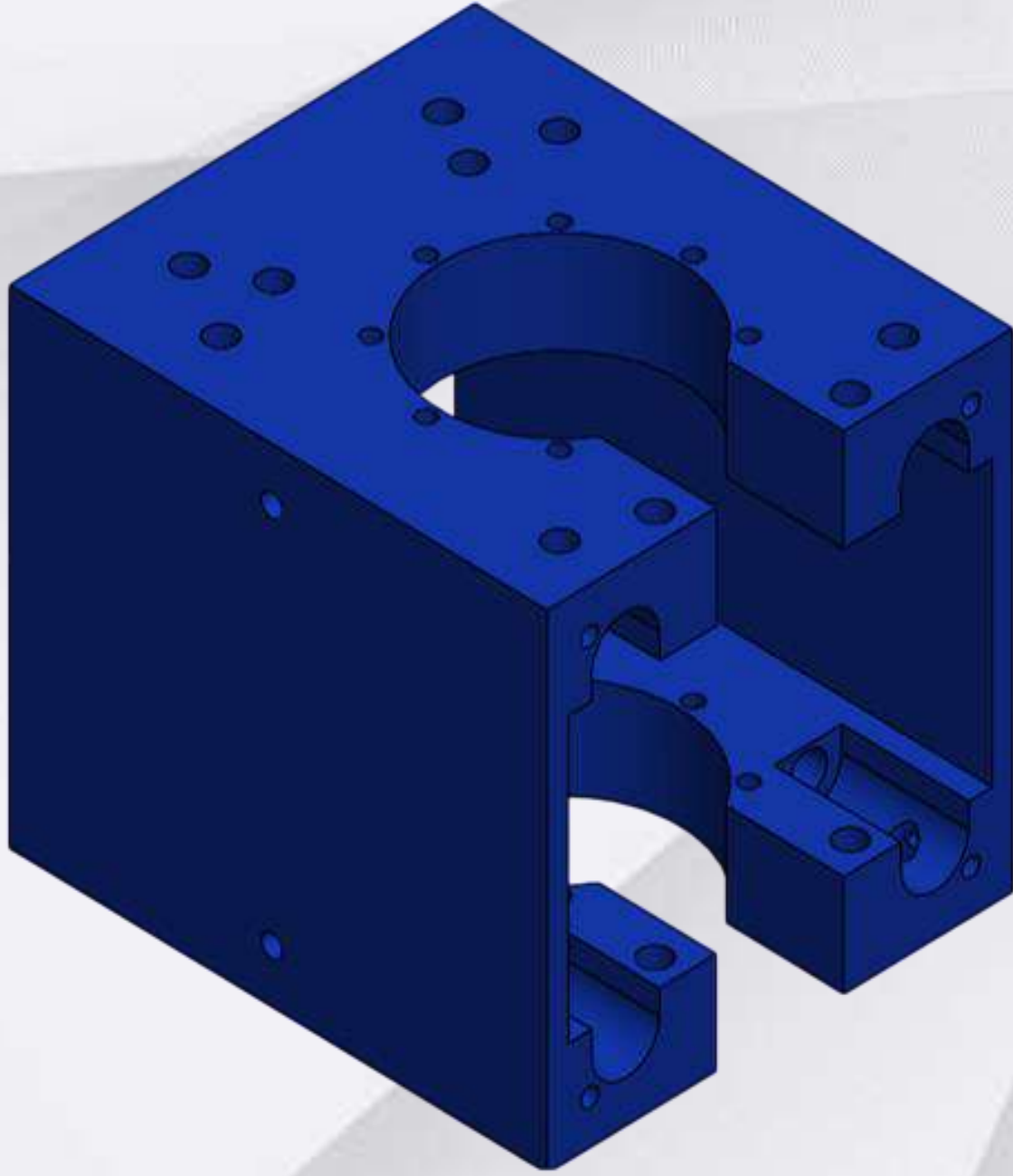


- $\text{© } 0,02\text{mm, // } 0,03\text{mm}$
- $67,9_{-0,1}^{-0,05}$  mm
- CNC FREZE, CNC TORNA
- 48-50 HRC
- AISI 1050
- 1,09 KG
- DATUM: A,B

$\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## TAKEOUT MEKANİZMASI



➤ **◎ 0,01mm**

➤ **Ø6 H7mm**

➤ **CNC FREZE**

➤ **X**

➤ **ETIAL 171**

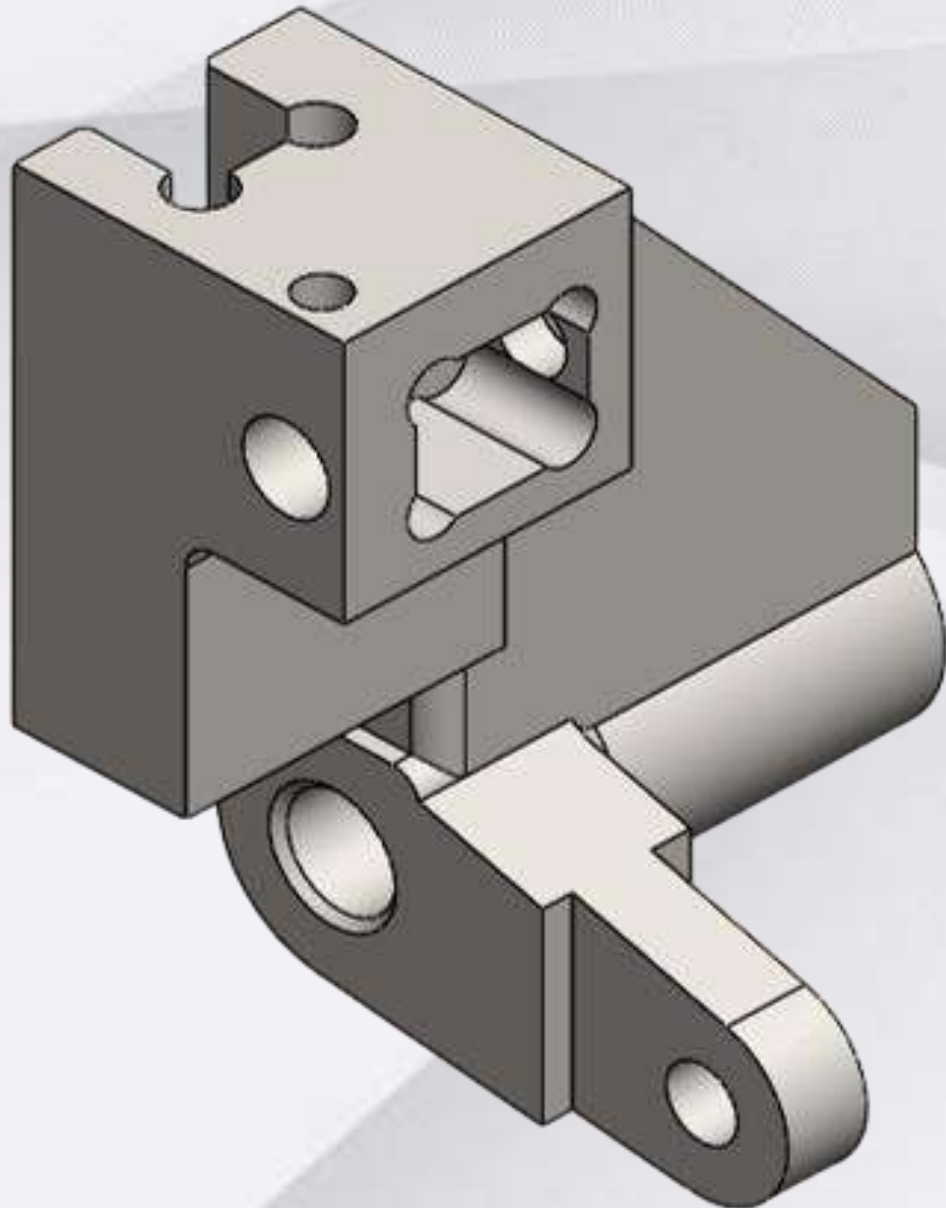
➤ **1,98 KG**

➤ **DATUM: A**

➤ **1,6**



## T/O KOLU-SOL



➤  $\perp 0,05\text{mm}, // 0,025\text{mm}$

➤  $7,9 \begin{matrix} +0,025 \\ \pm 0 \end{matrix} \text{mm}$

➤ CNC FREZE

➤ GERİLİM GİDERME

➤ MEEHANİTE GA-50

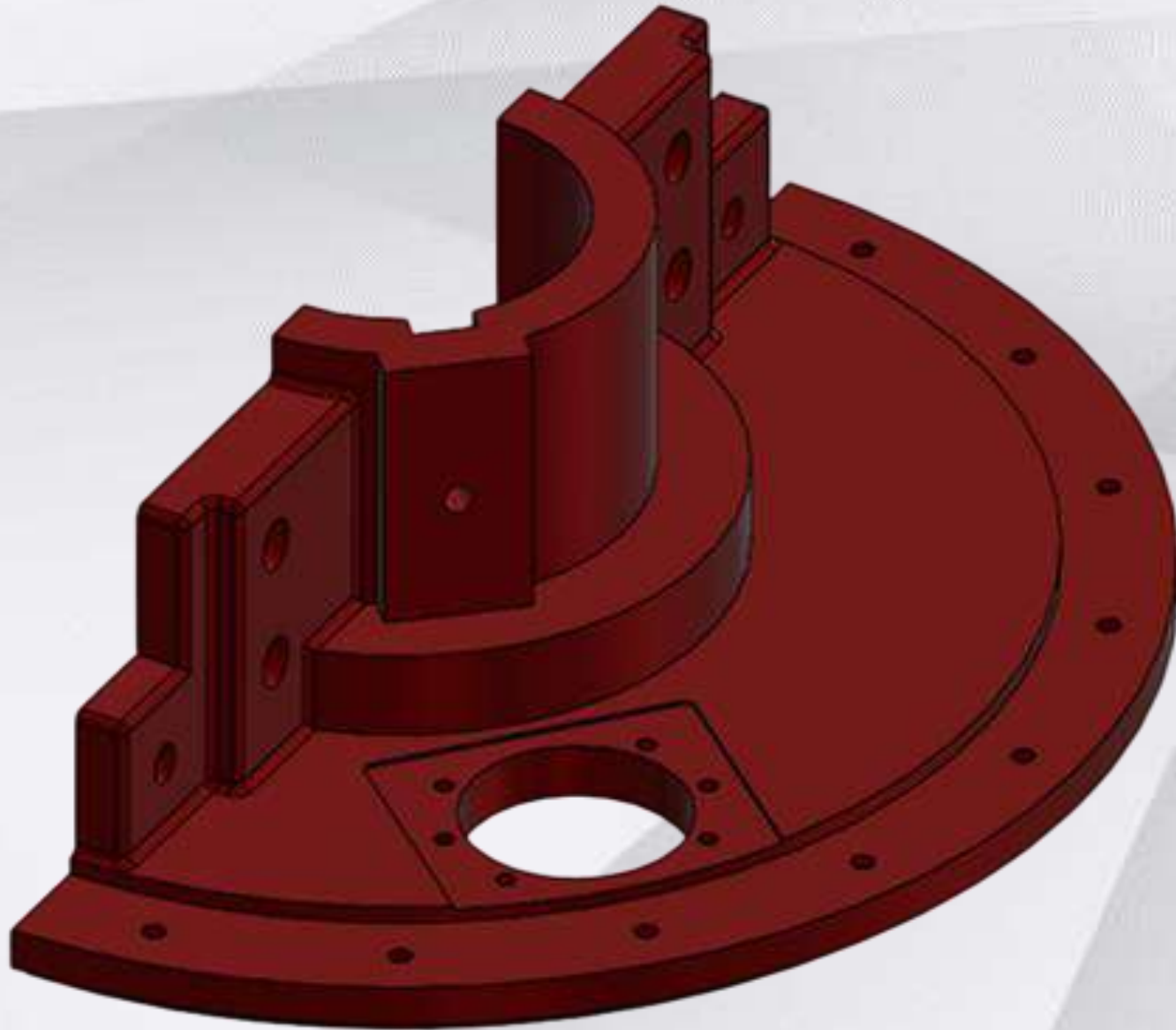
➤ 0,72 KG

➤ DATUM: A

➤  $1,6$



## ANA GÖVDE



➤  $\perp$  0,05mm,  $\square$  0,05mm

➤  $164,7^{+0,06}_{+0,02}$  mm

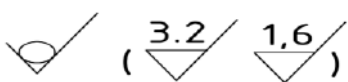
➤ CNC FREZE

➤ Sa2 KALİTE KUMLAMA

➤ EN-GJS-500-7

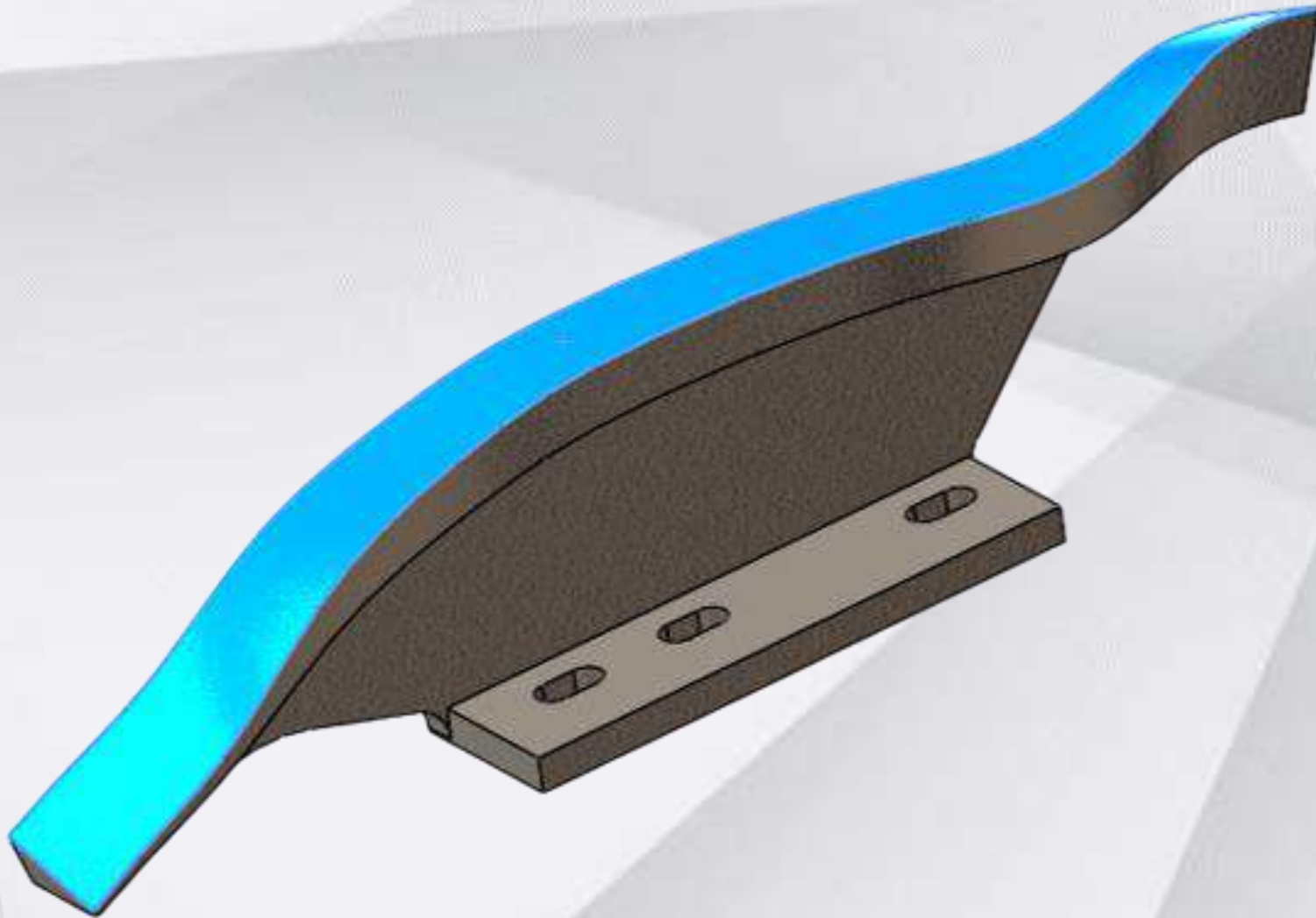
➤ 42,95 KG

➤ DATUM: A

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## KAM-4-36

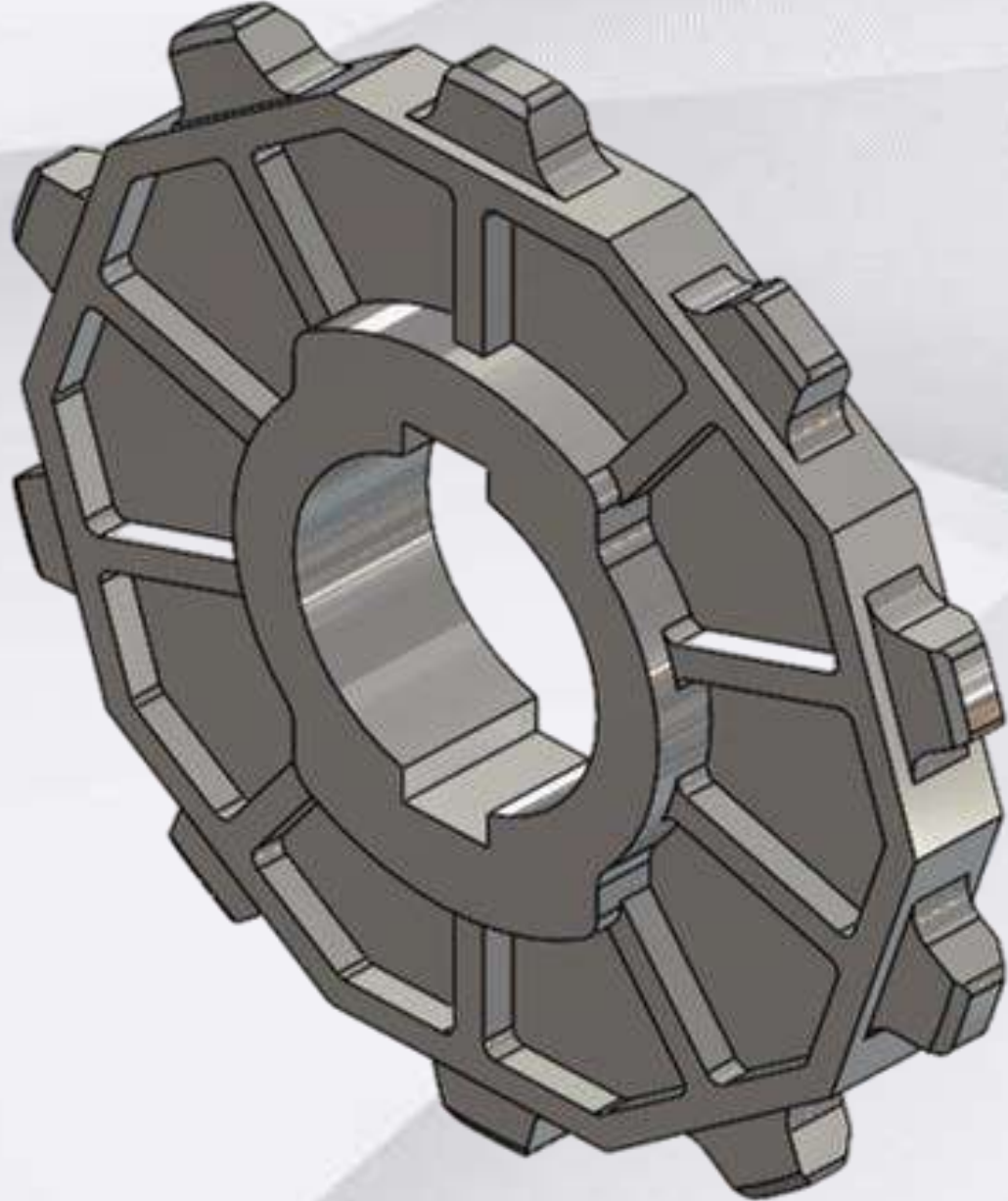



- X
- X
- CNC FREZE
- 58-60 HRC
- GGG 60
- 5,85 KG
- X

1,6



## BUFFERZONE BANT DIŞLİSİ



- X
- X
- CNC FREZE, CNC TORNA
- X
- PA TİP6
- 0,17 KG
- X
- 



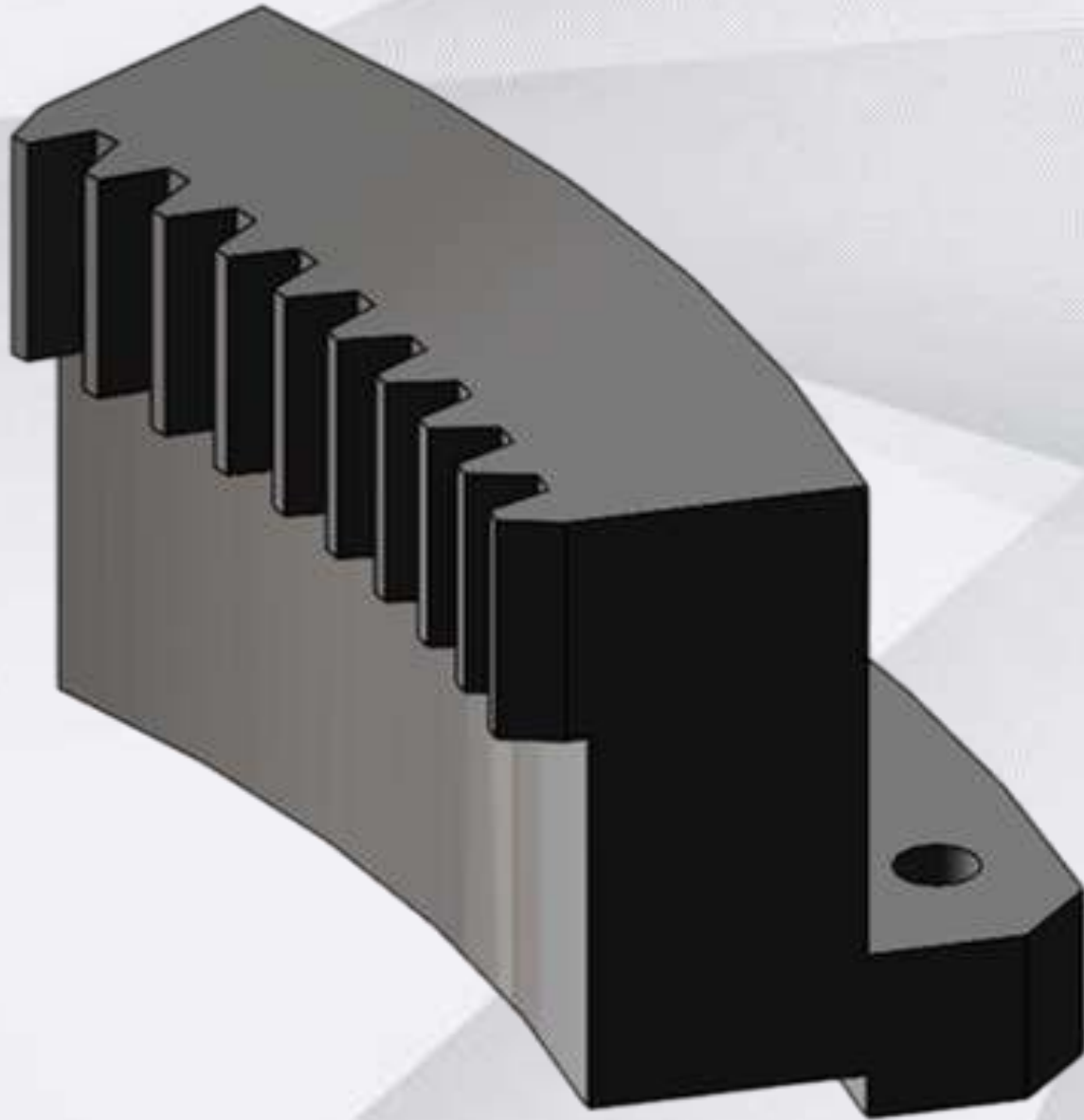
## 22X1.75 KONİK DISLI



- X
- 32  $\begin{matrix} +0,019 \\ \pm 0 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- 50-55 HRC
- AISI 4140
- 0,88 KG
- X
- 



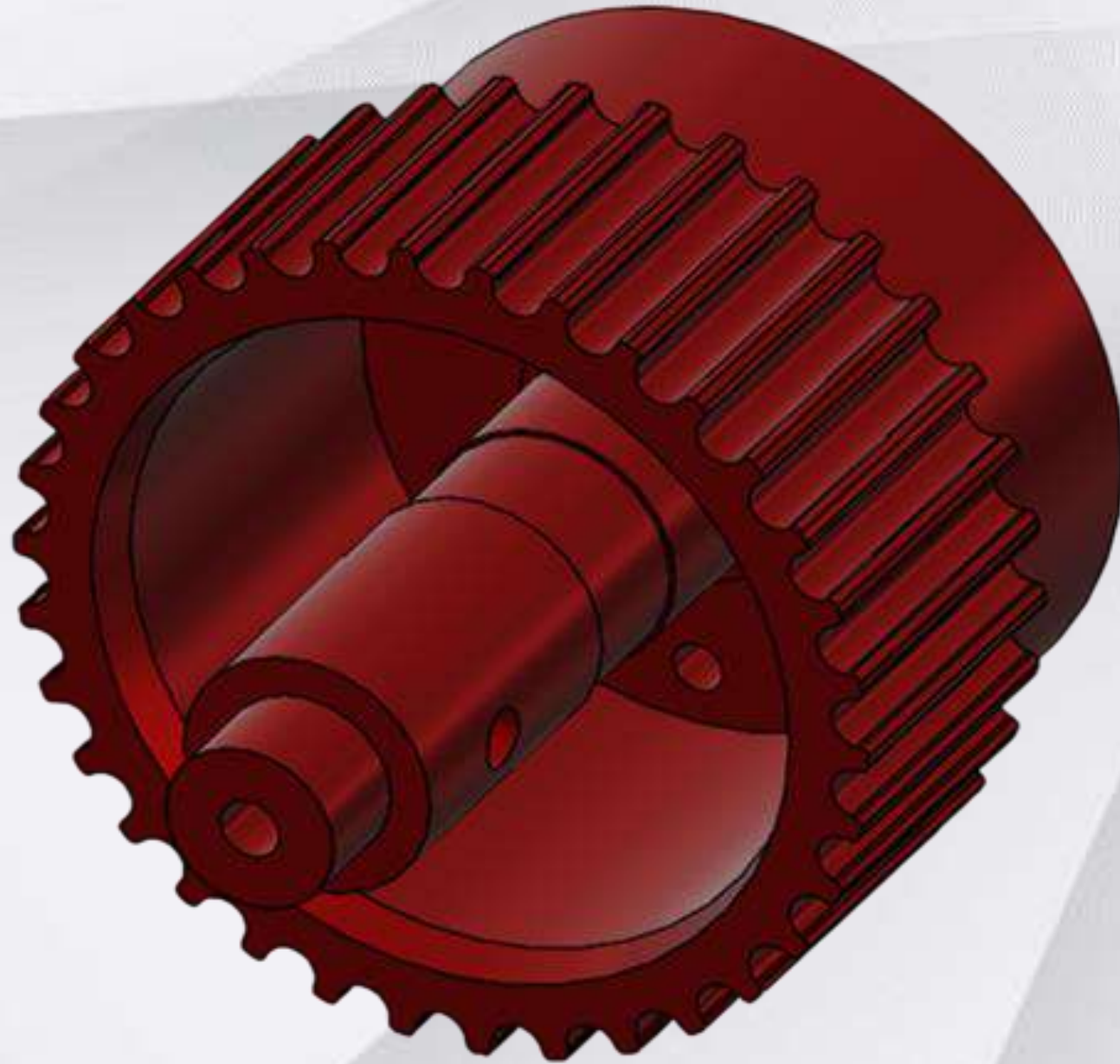
## YAY KREMAYER DİŞLİ



- X
- X
- CNC FREZE, CNC TORNA
- 50-55 HRC
- AISI 4140
- 0,96 KG
- X
- 



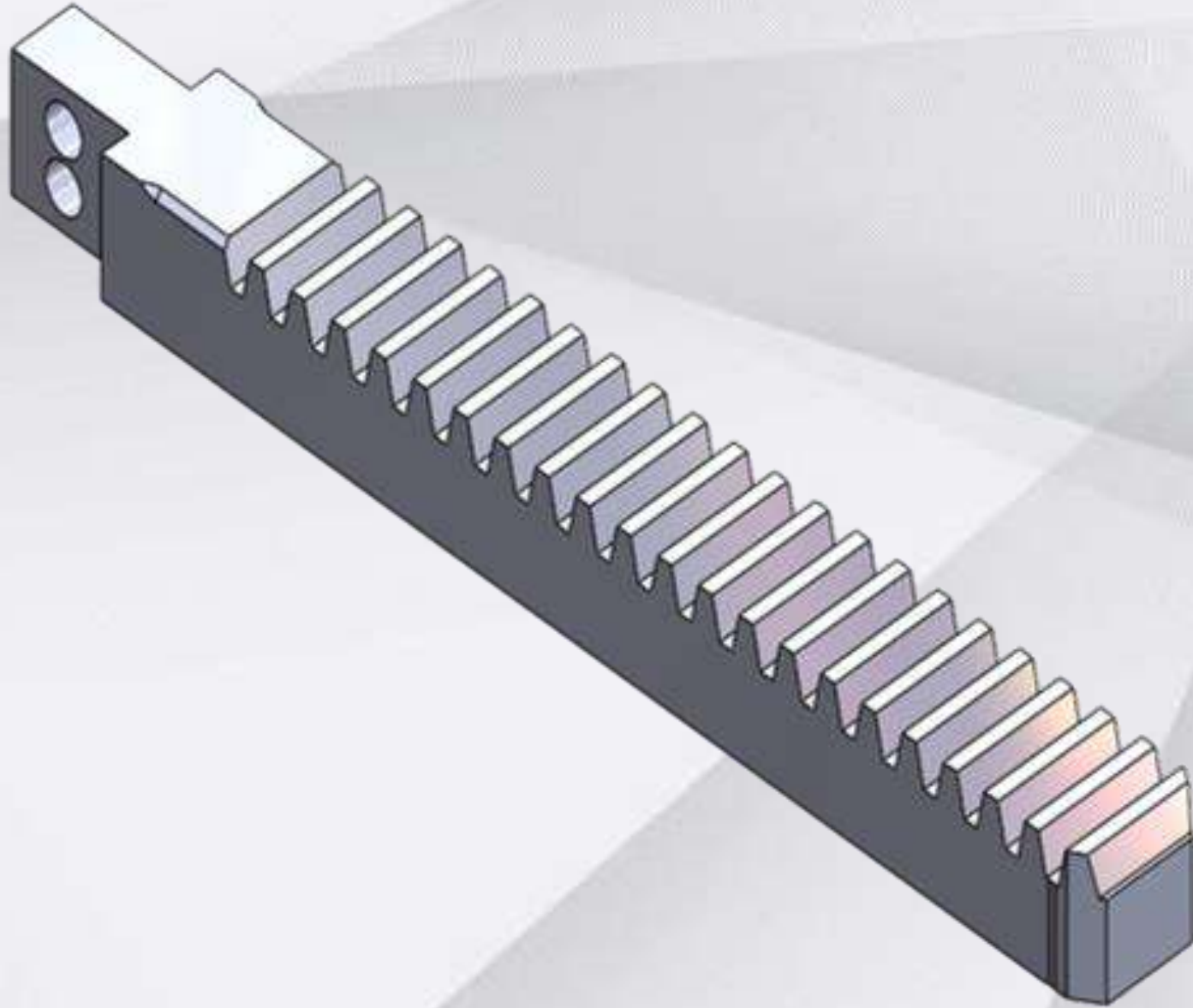
## GÖVDE AYAR DIŞLISI



- X
- 12  $\begin{matrix} +0,08 \\ \pm 0 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- 50-55 HRC
- AISI 4140
- 1,23 KG
- X
- 



## KREMAYER DİŞLİ



➤  $\perp$  0,02mm, // 0,02mm

➤  $\varnothing 15$   $\begin{matrix} -0,01 \\ -0,03 \end{matrix}$  mm

➤ CNC FREZE

➤ ISIL İŞLEM

➤ AISI 8620

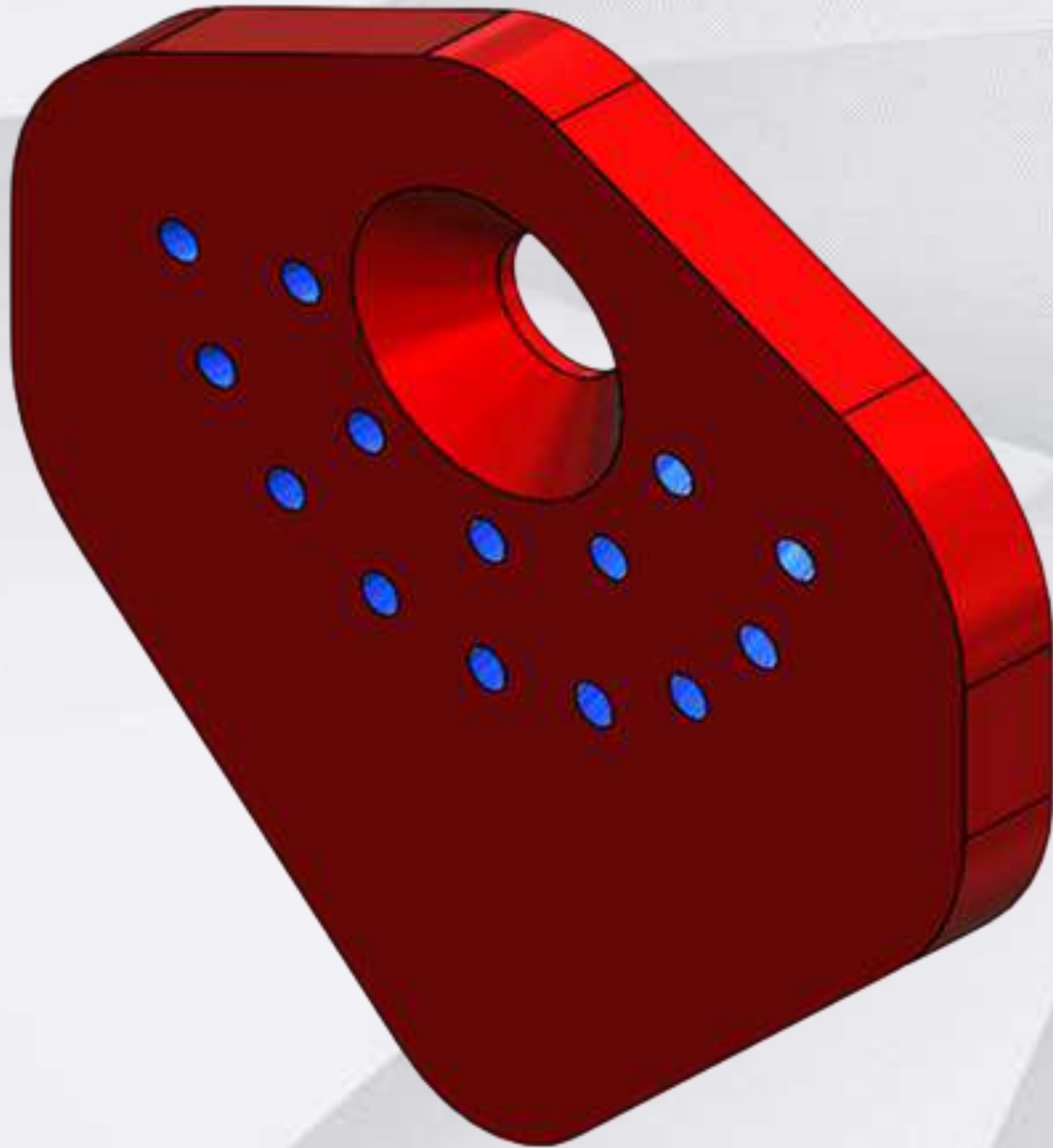
➤ 0,37 KG


➤ DATUM: A,B

➤  $\frac{3.2}{\nabla}$



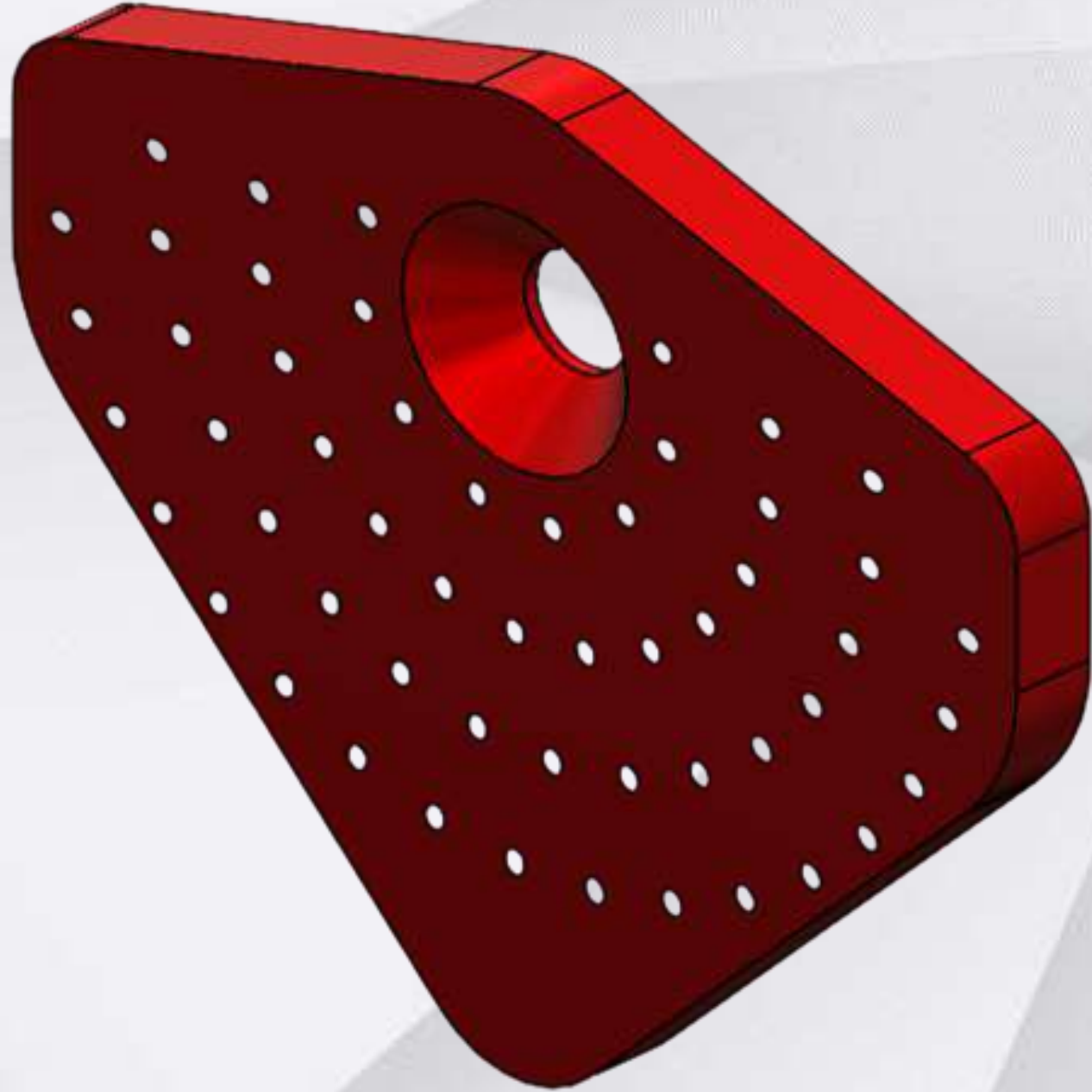
## MULDEBAG SÜZGEÇİ 2,5




- X
- X
- CNC FREZE
- Ø2,5x75°
- AISI 304
- 0,13 KG
- X
- 



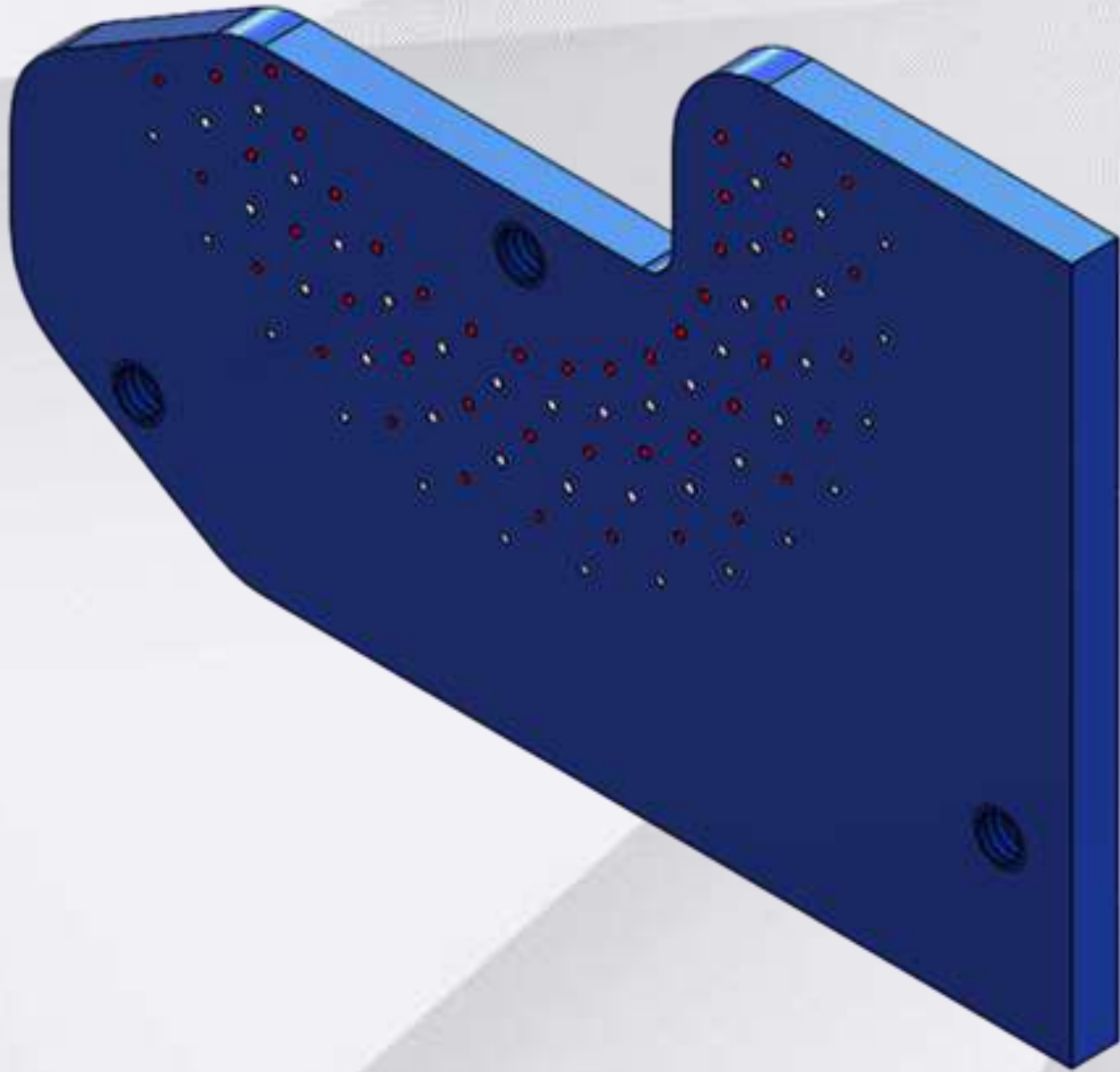
## MULDEBAG SÜZGEÇİ 1,5




- X
- X
- CNC FREZE
- Ø1,5x73°
- AISI 304
- 0,17 KG
- X
- 



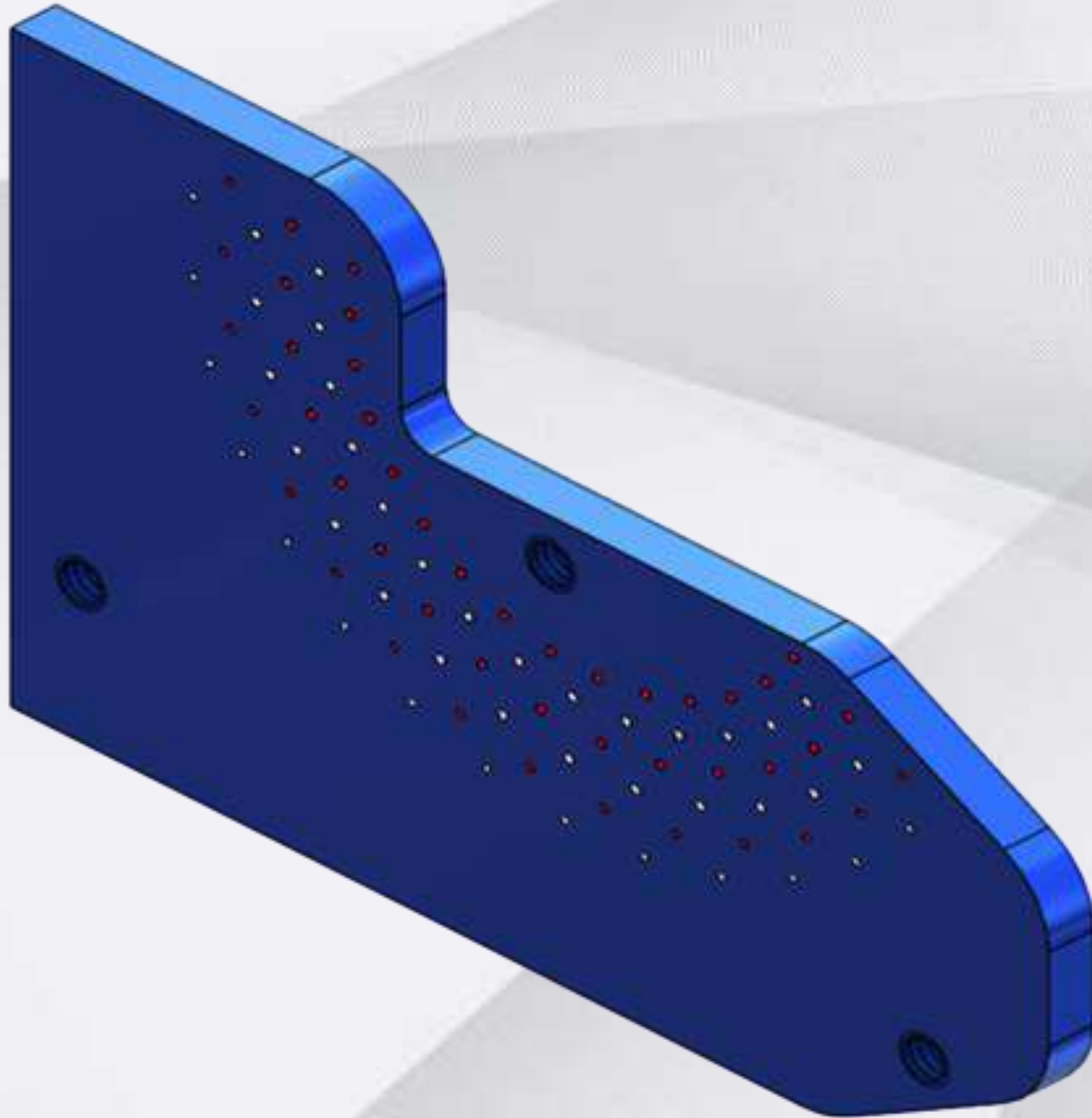
## MULDEBAG SÜZGEÇİ 1




- X
- X
- CNC FREZE
- Ø1x67°-70°
- AISI 304
- 0,33 KG
- X
- 



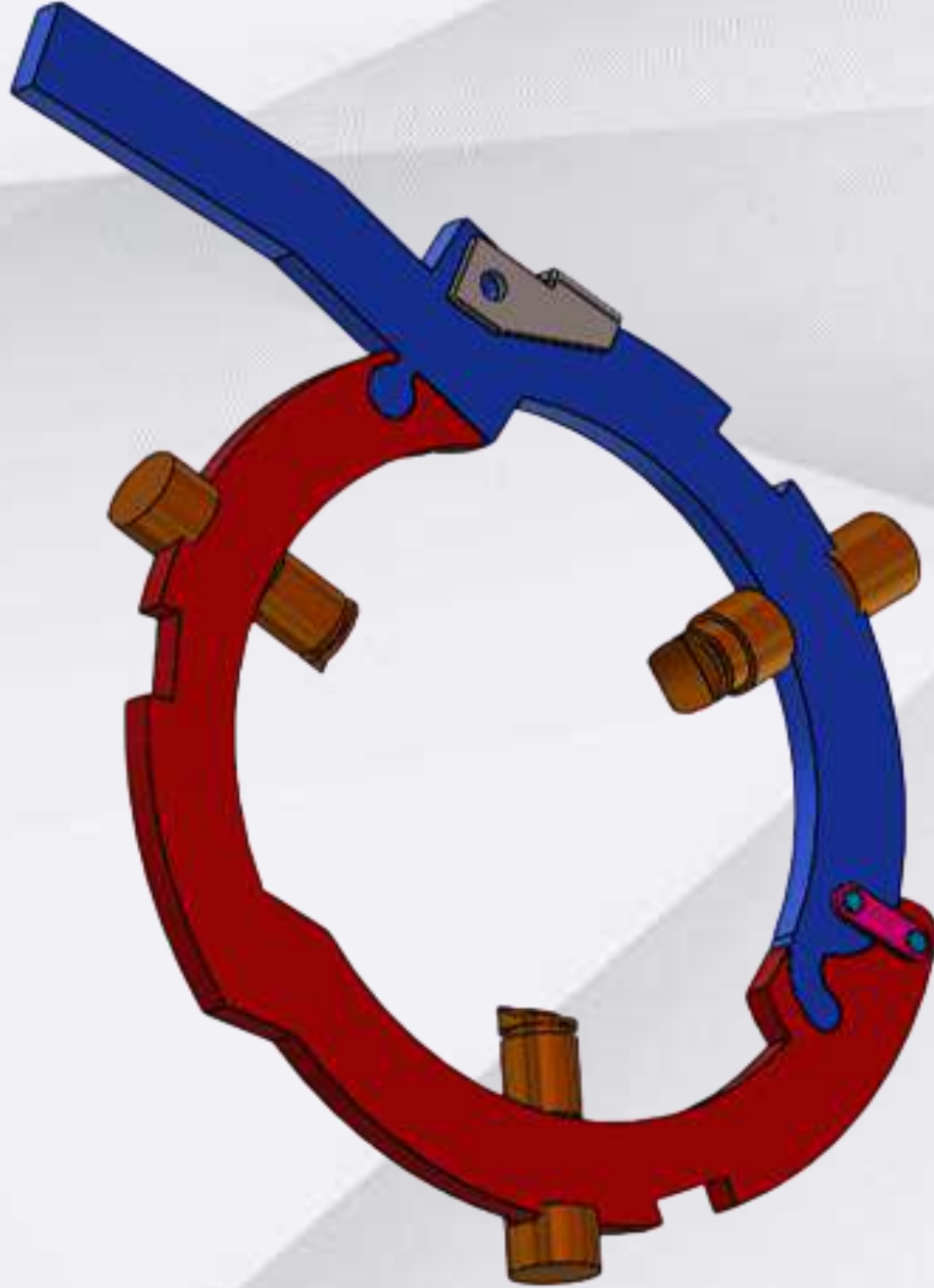
## MULDEBAG SÜZGEÇİ 1 ARKA




- X
- X
- CNC FREZE
- Ø1x67°-70°
- AISI 304
- 0,33 KG
- X
- 



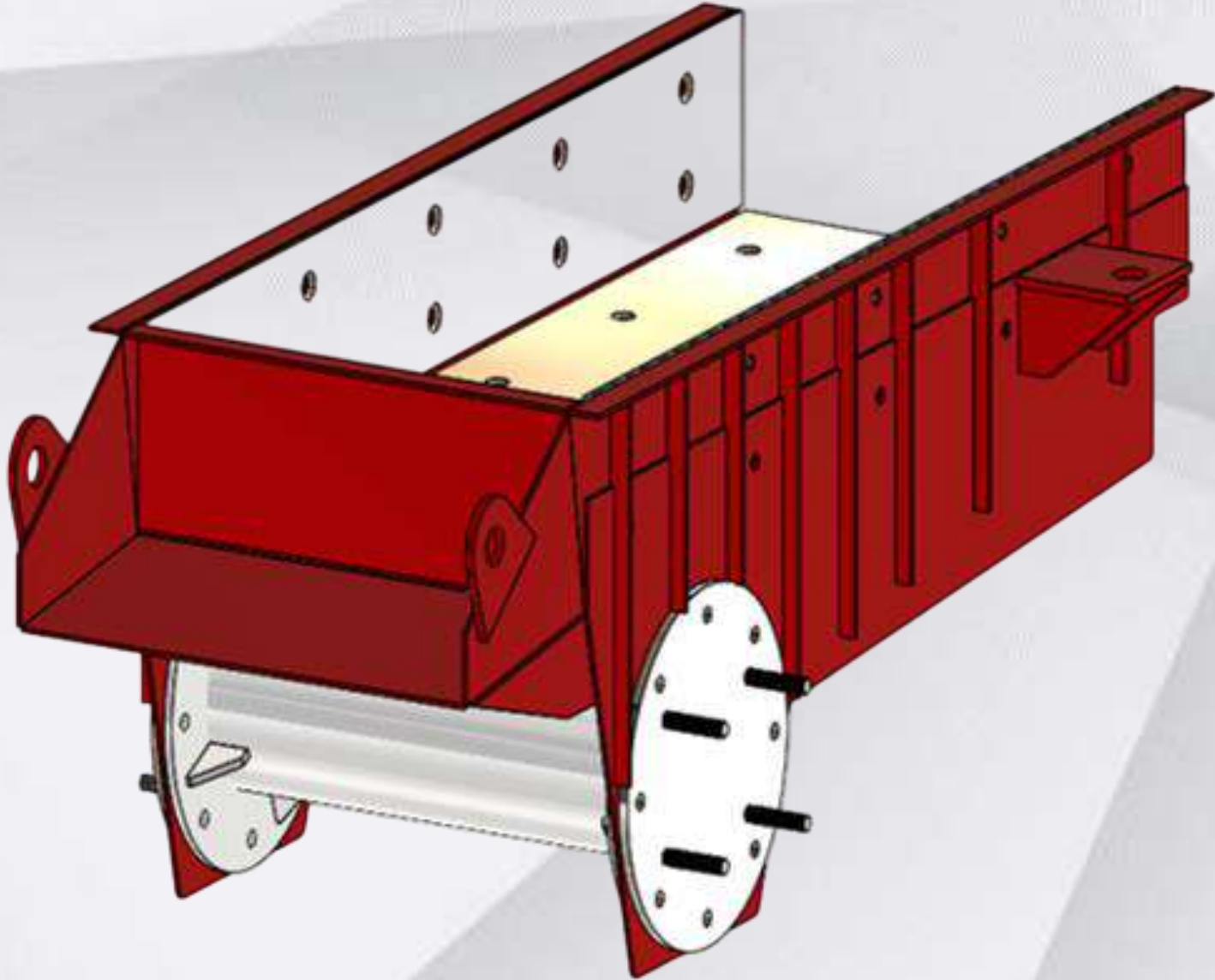
## BÖBREK KİLİTLEME APARATI




- X
- X
- CNC FREZE, CNC TORNA
- ANTİPAS BOYA
- AISI 304
- 4,41 KG
- X
- 



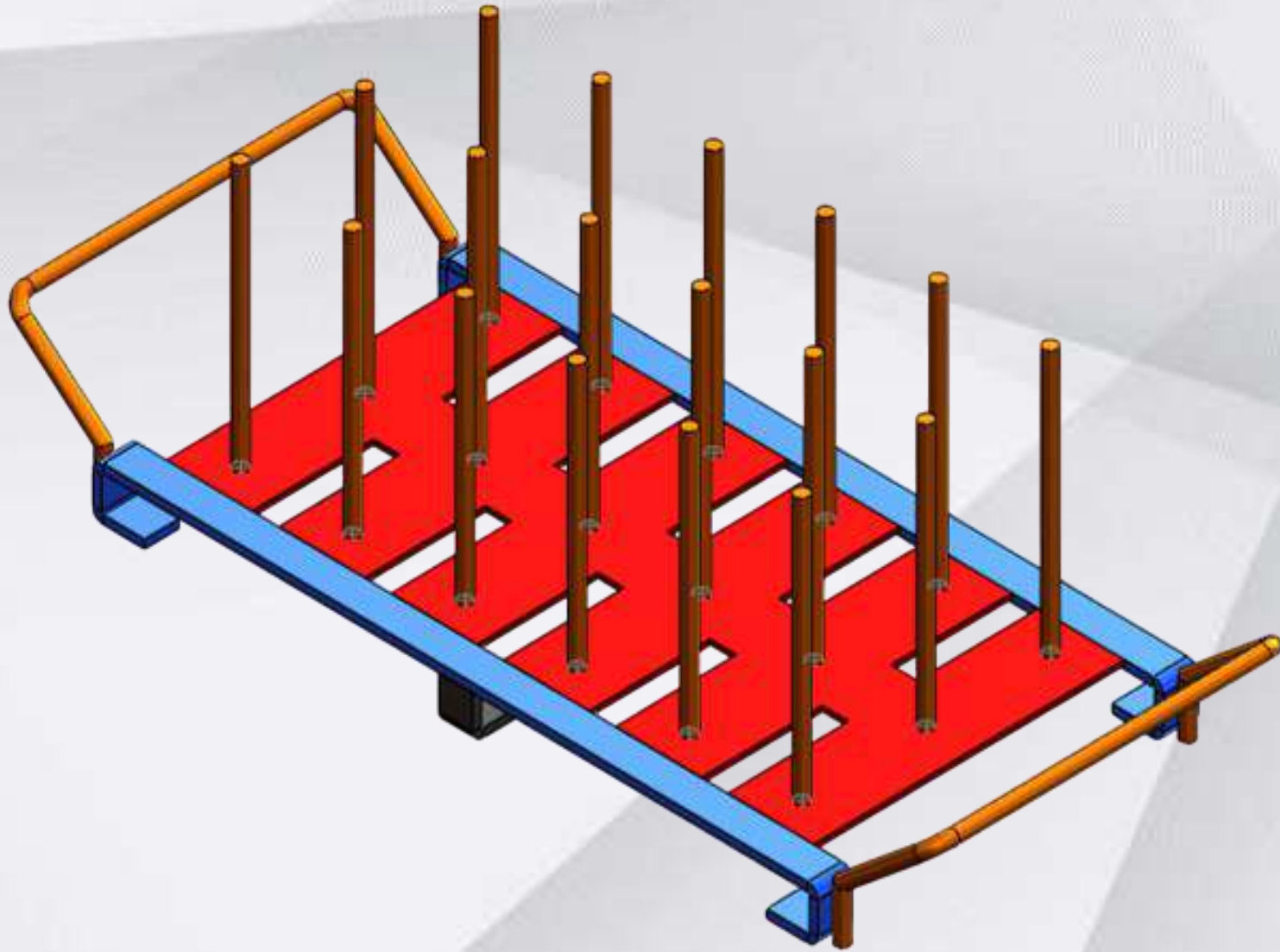
## VİBRASYON HAVUZU



- X
- X
- CNC FREZE, SAC LEV, KAYNAK
- ANTİPAS BOYA
- S235JR
- 240 KG
- X
- 



## MULDEFON İSTİFLEME APARATI



- $\perp$  0,05mm
- 8,2 mm
- CNC FREZE, CNC TORNA
- SAC LEVHA ,KAYNAK
- AISI 304
- 3,63 KG
- DATUM: A

1,6



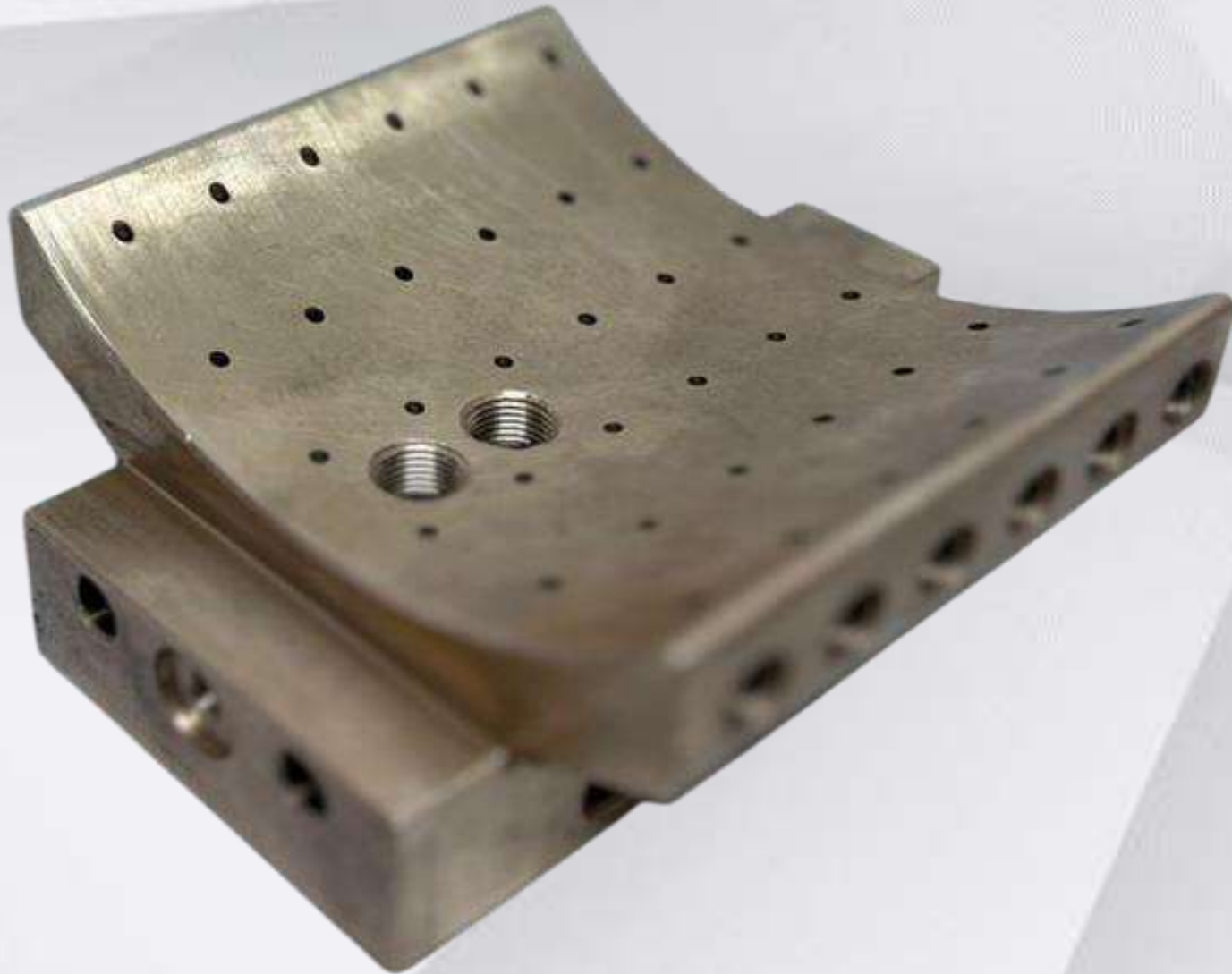
## MONTAJ/PARÇA ADI

**BU BÖLÜMDE İMALAT BÖLÜMÜ TARAFINDAN CNC VE MANUEL TEZGAHLARDA İMAL EDİLEN PARÇALARIN TANIM VE ÖZELLİKLERİ BELİRTİLECEKTİR. BU AŞAMADAN ÖNCE PARÇALARIN CAD TASARIMLARI VE CAM PROGRAMLARI HAZIR OLMASI GEREKİR. DAHA SONRA PARÇALAR MAKİNALARDA TALAŞLI VEYA TALAŞSIZ İMALATLARDAN GEÇEREK ÜRETİMİ YAPILIR.**

- **TEKNİK R. TOLERANSI**
- **MİNİMUM TOLERANS**
- **ÜRETİMDE KUL. TEZGAHLAR**
- **SERTLİK KAPLAMA, ISIL İŞLEM**
- **MONTAJ/PARÇA MALZEMESİ**
- **MONTAJ/PARÇA AĞIRLIĞI**
- **YÜZEY KALİTESİ**
- **TEKNİK R. DATUMLARI**



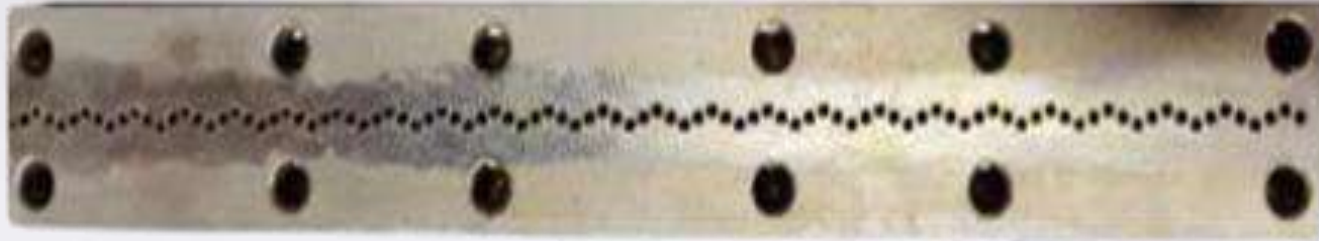
## FİNİSÖR DIŞ SOĞUTMA BLOĞU KISA

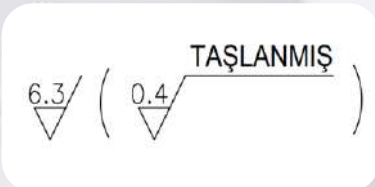


- **© 0,1mm**
- **74,722mm**
- **CNC FREZE**
- **X**
- **BRONZ DÖKÜM RG5**
- **0,93 KG**
- **DATUM: A**
- **3.2**



## AĞIZ YAKMA BEKİ



- X
- Ø1 mm
- CNC FREZE, HIZLI DELİK
- X
- AISI 304
- 1,8 KG
- X
- 



## SOĞUTMA PORTU



- X
- X
- CNC FREZE, SAC LEVHA
- HIZLI DELİK
- BASINÇ TESTİ
- AISI 304
- 0,3 KG

6,3



## SU ÇEKETİ YAN DUVAR



- X
- 9,2mm
- CNC TORNA, SAC LEVHA
- BASINÇ TESTİ
- AISI 304
- 1 KG
- X
- 



## ŞASI



- X
- CNC FREZE, CNC TORNA,
- SAC LEVHA, KAYNAK
- ANTİPAS BOYA
- S355J2G3
- 28,4 KG

➤ X


➤

$\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## BÖBREK KİLİTLEME APARATI



- X
- X
- CNC FREZE, CNC TORNA
- ANTİPAS BOYA
- AISI 304
- 4,41 KG
- X
- 



## DS\_KYM\_BİCAK



- X
- X
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- AISI 4140
- 2,6 KG
- X

1,6



## AYAR SAPLAMA TOPUZU



- X
- X
- CNC FREZE
- X
- ETİAL 110
- 0,059 KG
- X
- $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## TRİGER DİŞLİ



- X
- X
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- 6063 T6
- 0,84 KG
- X

1,6



## KONİK DİŞLİ



- X
- $12^{+0,05}_{\pm 0}$  mm
- CNC FREZE, CNC TORNA
- 50-55 HRC
- AISI 4140
- 0,6 KG
- X
- $\sqrt{\left( \frac{12.5}{\sqrt{\left( \frac{6.3}{\sqrt{\left( \frac{3.2}{\sqrt{\left( \right)}} \right)}} \right)}} \right)}} \right)}$



## ZİNCİR DİŞLİSİ



- X
- $50^{+0,1}_{\pm 0}$  mm
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- AISI 8620
- 0,8 KG
- X
- 



## KREMAYER DİŞLİ



➤  $\perp$  0,02mm, // 0,02mm

➤  $\varnothing 15$   $\begin{matrix} -0,01 \\ -0,03 \end{matrix}$  mm

➤ CNC FREZE

➤ ISIL İŞLEM

➤ AISI 8620

➤ 0,37 KG

➤ DATUM: A,B

➤  $\frac{3.2}{\nabla}$



## SÜFLAJ ÜST DİŞLİ



➤  $\perp$  0,03mm, // 0,03mm

➤ 25,4  $\begin{matrix} +0,025 \\ \pm 0 \end{matrix}$

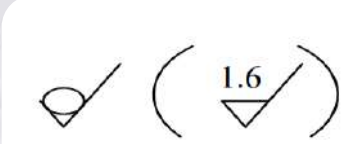
➤ CNC FREZE

➤ 50-52 HRC

➤ AISI 4140

➤ 0,89 KG

➤ DATUM: A,B

➤ 



## ELDRED BOŞALTICI YÜKSEKLİK AYAR SOMUNU



- X
- $4 \begin{matrix} \pm 0 \\ -0.2 \end{matrix} \text{mm}$
- CNC FREZE, CNC TORNA
- ISIL İŞLEM
- C45
- 3,59 KG
- X
- 



## KAM



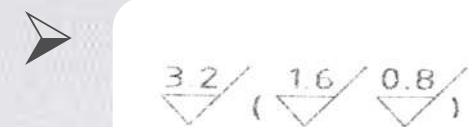
- X
- 62  $\begin{matrix} +0,2 \\ +0,1 \end{matrix}$  mm
- CNC FREZE, CNC TORNA
- 50-55 HRC
- AISI 8620
- 0,71 KG
- X
- $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## TAMPON MİLİ



- X
- $30_{-0,009}^{-0,025}$  mm
- CNC FREZE, TORNA, TAŞLAMA
- 40-42 HRC
- 42CrMo4
- 0,6 KG
- X



## PİSTON MİLİ



➤  $\text{◎ } 0,03 \text{ mm, } \perp 0,02 \text{ mm}$

➤  $41,28^{+0}_{-0,016} \text{ mm}$

➤ CNC FREZE, CNC TORNA

➤ 42-45 HRC

➤ 4140 İSLAHLI

➤ 5,2 KG

➤ DATUM: A,B

➤  $\frac{3.2}{\nabla} (\frac{1.6}{\nabla} \frac{0.2}{\nabla})$



## ÜST BLOK



➤  $\odot$  0,02mm, // 0,03 mm

➤  $67,9_{-0,1}^{-0,05}$  mm

➤ CNC FREZE, CNC TORNA

➤ 48-50 HRC

➤ AISI 1050

➤ 1,09 KG

➤ DATUM: A,B

➤  $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## KALIP BAĞLANTI KOLU 5İNC SOL



- $\perp 0,05\text{mm}$
- $25,4 \begin{matrix} +0,015 \\ +0,002 \end{matrix} \text{ mm}$
- CNC FREZE
- NİTRASYON
- 41CrMo4
- 0,53 KG
- DATUM: A
- $\frac{3,2}{\nabla} \left( \frac{0,8}{\nabla} \right)$



## YÜKLEYİCİ KAM GÖBEĞİ



- X
- 20 <sup>+0,149</sup>/<sub>+0,065</sub> mm
- CNC FREZE, CNC TORNA
- GERİLİM GİDERME
- GGG40
- 13,38 KG
- X
- 



## AŞAĞI YUKARI MEKANİZMA GÖVDESİ SOL



➤  $\odot$  0,025mm,  $\perp$  0,025 mm

➤  $12,7^{+0,02}_{\pm 0}$  mm

➤ CNC FREZE

➤ X

➤ AISI 1050

➤ 0,56 KG

➤ DATUM: A

➤  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$



## YATAKLAMA KIZAĞI



➤ X

➤ 16  $\begin{matrix} +0,018 \\ \pm 0 \end{matrix}$  mm

➤ CNC FREZE

➤ NİTRASYON

➤ 4140 İSLAHLI

➤ 0,48 KG

➤ X

➤  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$



## KESME BEK YATAĞI



- X
- 14  $\begin{matrix} +0,2 \\ +0,1 \end{matrix}$  mm
- CNC FREZE
- GERİLİM GİDERME
- GG26
- 4,76 KG
- X
- $\sqrt{\left( \frac{12.5}{\sqrt{3}} \frac{6.3}{\sqrt{3}} \frac{3.2}{\sqrt{3}} \right)}$



## T/O KOLU-SOL



➤  $\perp$  0,05 mm, // 0,025mm

➤ 7,9  $\begin{matrix} +0,025 \\ \pm 0 \end{matrix}$  mm

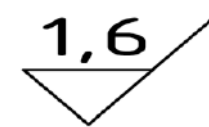
➤ CNC FREZE

➤ GERİLİM GİDERME

➤ MEEHANİTE GA-50

➤ 0,72 KG

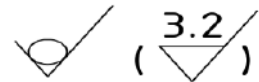
➤ DATUM: A

➤ 



## DİŞLİ YUVASI




- X
- 19  $\begin{matrix} +0,02 \\ -0,02 \end{matrix}$  mm
- CNC FREZE
- GERİLİM GİDERME
- EN-GJS-500-7
- 3,14 KG
- X
- 



## 7 INCH KİLİTLEME ŞASESİ



- $\perp 0,05\text{mm}$
- $14,3 \begin{matrix} +0,02 \\ \pm 0 \end{matrix} \text{mm}$
- CNC FREZE
- GERİLİM GİDERME
- GGG40
- 2,4 KG
- DATUM: A

 (  $\frac{3,2}{\nabla}$  /  $\frac{1,6}{\nabla}$  )



## ÜST PLAKA



➤  $\text{© } 0,03 \text{ mm}, \perp 0,03\text{mm}$

➤  $18^{+0,04}_{+0,02} \text{ mm}$

➤ CNC FREZE

➤ Sa2 KALİTE KUMLAMA

➤ EN-GJS-600-3

➤ 7,4 KG


➤ DATUM: A,B,C

➤  $1,6$



## KLEPE KOLU KİLİT.PARÇA



- X
- 6,245 mm
- CNC FREZE
- X
- AISI 1045
- 0,3 KG
- X
- 



## 7INCH MÜLDEBAG KONSOLU



➤  $\perp$  0,01mm, // 0,01mm

➤  $201,6^{+0}_{-0,025}$  mm


➤ CNC FREZE

➤ GERİLİM GİDERME

➤ EN-GJS-500-7

➤ 43,8 KG

➤ DATUM: A,B,C

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## MULDEBAG KONSOLU



➤  $\perp$  0,01mm, // 0,01mm

➤  $6 \begin{matrix} +0,025 \\ \pm 0 \end{matrix}$  mm


➤ CNC FREZE

➤ APARATLI ÜRETİM

➤ GGG50

➤ 31,4 KG

➤ DATUM: A,B,C

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## MULDEBAG KONSOLU



➤  $\perp 0,01\text{mm}, // 0,01\text{mm}$

➤  $6 \begin{matrix} +0,025 \\ \pm 0 \end{matrix} \text{mm}$

➤ CNC FREZE

➤ APARATLI ÜRETİM

➤ GGG50

➤ 31,4 KG

➤ DATUM: A,B,C

➤  $\sqrt{\text{3.2}} \sqrt{\text{1.6}}$



## MÜLDEBAG KAPAĞI



➤ © 0,05mm, // 0,01mm

➤ 84  $\begin{matrix} +0,035 \\ \pm 0 \end{matrix}$  mm

➤ CNC FREZE

➤ GERİLİM GİDERME

➤ GGG50

➤ 5,22 KG

➤ DATUM: A,B

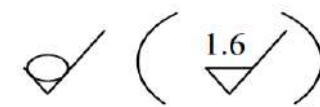
➤ 



## MÜLDEBAG FLANŞI



- $\text{© } 0,05\text{mm}$
- $18 \begin{matrix} -0,05 \\ -0,023 \end{matrix} \text{mm}$
- CNC FREZE
- X
- GGG50
- 4,9 KG
- DATUM: A



## GÖVDE



- X
- $55^{+0,03}_{\pm 0}$  mm
- CNC FREZE
- ANCOR KAPLAMA
- AISI 1050
- 4,3 KG
- X
- $\nabla 6.3 / ( \nabla 0.4 \text{ TAŞLANMIŞ} )$



## GÖVDE



➤ X

➤  $66^{+0,03}_{\pm 0}$  mm


➤ CNC FREZE, CNC TORNA

➤ X

➤ GGG60

➤ 3,16 KG

➤ X

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## SPİNDLE GALE KOLU



➤  $\perp$  0,05mm, // 0,05mm

➤  $63,4 \begin{matrix} \pm 0 \\ -0,05 \end{matrix}$  mm


➤ CNC FREZE

➤ GERİLİM GİDERME

➤ GGG50

➤ 4,2 KG

➤ DATUM: A

➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## SÜFLAJ BRAKETİ



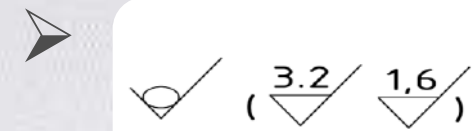
- X
- $33^{+0,02}_{\pm 0}$  mm
- CNC FREZE
- X
- GGG50
- 4,8 KG
- X
- $\sqrt{6,3}$   $\sqrt{3,2}$   $\sqrt{1,6}$



## YATAK-KOL DESTEĞİ



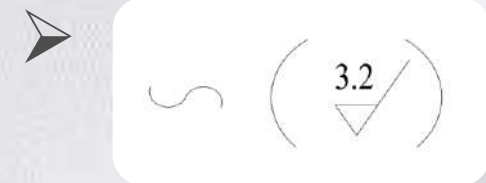
- $\text{© } 0,02\text{mm}$
- $63,5 \begin{matrix} \pm 0 \\ -0,03 \end{matrix} \text{mm}$
- CNC FREZE
- GERİLİM GİDERME
- GGG50
- 8,17 KG
- DATUM: A



## SÜFLAJ ARA GÖVDE




- X
- $25,4^{+0,02}_{\pm 0}$  mm
- CNC FREZE
- GERİLİM GİDERME
- GGG50
- 3,4 KG
- X



## MASTÖR SİLİNDİRİ MANDALI



- X
- $19,05^{+0,025}_{\pm 0}$  mm
- CNC FREZE
- X
- GGG50
- 1,58 KG
- X
- 



## PİSTON BAĞLAMA BRAKETİ



➤  $\nabla$  0,02mm, // 0,02mm

➤  $36^{+0,025}_{\pm 0}$  mm

➤ CNC FREZE

➤ X

➤ GGG50

➤ 15,23 KG

➤ DATUM: A

➤  $\nabla$  (6,3 / 3,2 / 1,6)



## GALE KOLU UZUN YATAK GÖVDESİ



➤  $\text{© } 0,02\text{mm, // } 0,03\text{mm}$

➤  $34,9^{+0,089}_{+0,05}$  mm

➤ CNC FREZE

➤ GERİLİM GİDERME

➤ GGG50

➤ 22,63 KG

➤ DATUM: A

➤  $\text{✓} \left( \text{▽} \begin{matrix} 12.5 \\ 1.6 \end{matrix} \right)$



## 2 DAMLA EBÜŞÖR İNSERT



- // 0,05mm
- $19^{+0,2}_{+0,1}$  mm
- CNC FREZE
- NİTRASYON
- EN-GJS-500-7
- 4,54 KG
- DATUM: A

✓ (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## KAPE MERKEZLEME KAİDESİ



➤  $\perp$  0,05mm, // 0,05mm

➤  $45^{+0,1}_{-0,1}$  mm

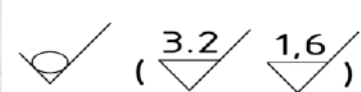
➤ CNC FREZE

➤ X

➤ GG26

➤ 5,1 KG

➤ DATUM: A

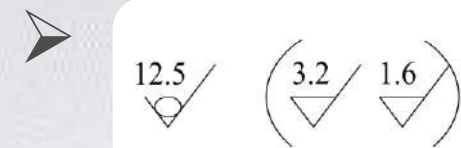
➤  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## MULDEFON KALDIRICI GALE KOLU



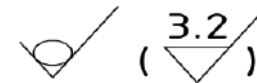
- $\perp 0,05\text{mm}, // 0,05\text{mm}$
- $40^{+0,03}_{\pm 0}$  mm
- CNC FREZE, CNC TORNA
- GERİLİM GİDERME
- GGG50
- 3,8 KG
- DATUM: A,B



## GALE BRAKETİ



- X
- $88,9 \begin{matrix} \pm 0 \\ -0,051 \end{matrix} \text{mm}$
- CNC FREZE
- GERİLİM GİDERME
- GGG50
- 3,16 KG
- X

 (3.2)



## DESTEK



- // 0,05mm
- $25^{+0,021}_{\pm 0}$  mm
- CNC FREZE
- X
- ETİAL 171
- 0,93 KG
- DATUM: A
- 



## CYLINDER HEAD



- $\text{© } 0,02\text{mm}$
- $16^{+0,018}_{+0,007}\text{mm}$
- CNC FREZE
- X
- ETİAL 171
- 0,61 KG
- DATUM: A,B

1,6



## ROTATOR GÖVDE



- // 0,1mm
- $35^{+0,02}_{\pm 0}$  mm
- CNC FREZE
- ELOKSAL KAPLAMA
- 6063-T6
- 0,63 KG
- DATUM: A

1,6



## MOTOR BAĞLANTI FLANŞI



- $\text{© } 0,05\text{mm}$
- $110 \begin{matrix} +0,035 \\ +0,02 \end{matrix} \text{mm}$
- CNC FREZE
- X
- 6063-T6
- 1,07 KG
- DATUM: A
- $1,6$



## KRAMAYER BASKI KAPAĞI



- X
- 26  $\begin{matrix} +0,2 \\ +0,1 \end{matrix}$  mm
- CNC FREZE
- X
- ETIAL 171
- 0,29 KG
- X
- $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## KOVAN



➤  $\perp 0,03 \text{ mm}, // 0,03\text{mm}$

➤  $38 \begin{matrix} +0,03 \\ \pm 0 \end{matrix} \text{ mm}$

➤ CNC FREZE

➤ ELOKSAL KAPLAMA

➤ 7075 Al

➤ 0,16 KG

➤ DATUM: A

➤  $\frac{3.2}{\nabla} / \frac{1.6}{\nabla}$



## CA.IS.TARAK BLOĞU



- $\text{◎ } 0,05\text{mm}$
- $15 \begin{matrix} \pm 0 \\ - 0,03 \end{matrix} \text{mm}$
- CNC FREZE
- X
- 6061 Al
- 0,13 KG
- X
- $1,6$



## KOL 1. PARÇA



- X
- $49,2 \begin{matrix} +0,051 \\ \pm 0 \end{matrix} \text{mm}$
- CNC FREZE
- BASINÇ TESTİ
- ETIAL 171
- 1,17 KG
- X
-  (  $\frac{3.2}{\nabla}$  /  $\frac{1.6}{\nabla}$  )



## MAKAS KOLU SAĞ



➤ // 0,02mm, □ 0,1mm

➤ 38,1  $\begin{matrix} +0,1 \\ +0,05 \end{matrix}$  mm

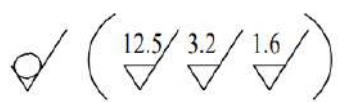
➤ CNC FREZE

➤ X

➤ ETİAL 171

➤ 2,07 KG

➤ DATUM: A,B

➤  (12.5/3.2/1.6)



## A7 MAKAS TAMPON KOLU



- $\odot$  0,05mm
- 25,4  $\begin{matrix} +0,05 \\ +0,02 \end{matrix}$  mm
- CNC FREZE
- X
- ETİAL 110
- 0,83 KG
- DATUM: A
- 



## MAKAS KOLU SAĞ



➤ // 0,02mm, □ 0,1mm

➤ 38,1 <sup>+0,1</sup>/<sub>+0,05</sub> mm

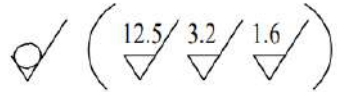
➤ CNC FREZE

➤ X

➤ ETİAL 171

➤ 2,07 KG

➤ DATUM: A,B

➤ 



## KOL 2



- X
- $50,8 \begin{matrix} \pm 0 \\ -0,05 \end{matrix} \text{mm}$
- CNC FREZE
- 50-55 HB
- ETIAL 171
- 1 KG
- X

✓ ( 3.2 / )



«TOLERANS SINIRINDA, KALİTE ZİRVEDE»



köprüören makine

**aselsan**

NG | KÜTAHYA  
SERAMİK



**LAV**



Fuatpaşa Mahallesi 32. Sokak No: 24 / 26  
MERKEZ/KÜTAHYA



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148/148