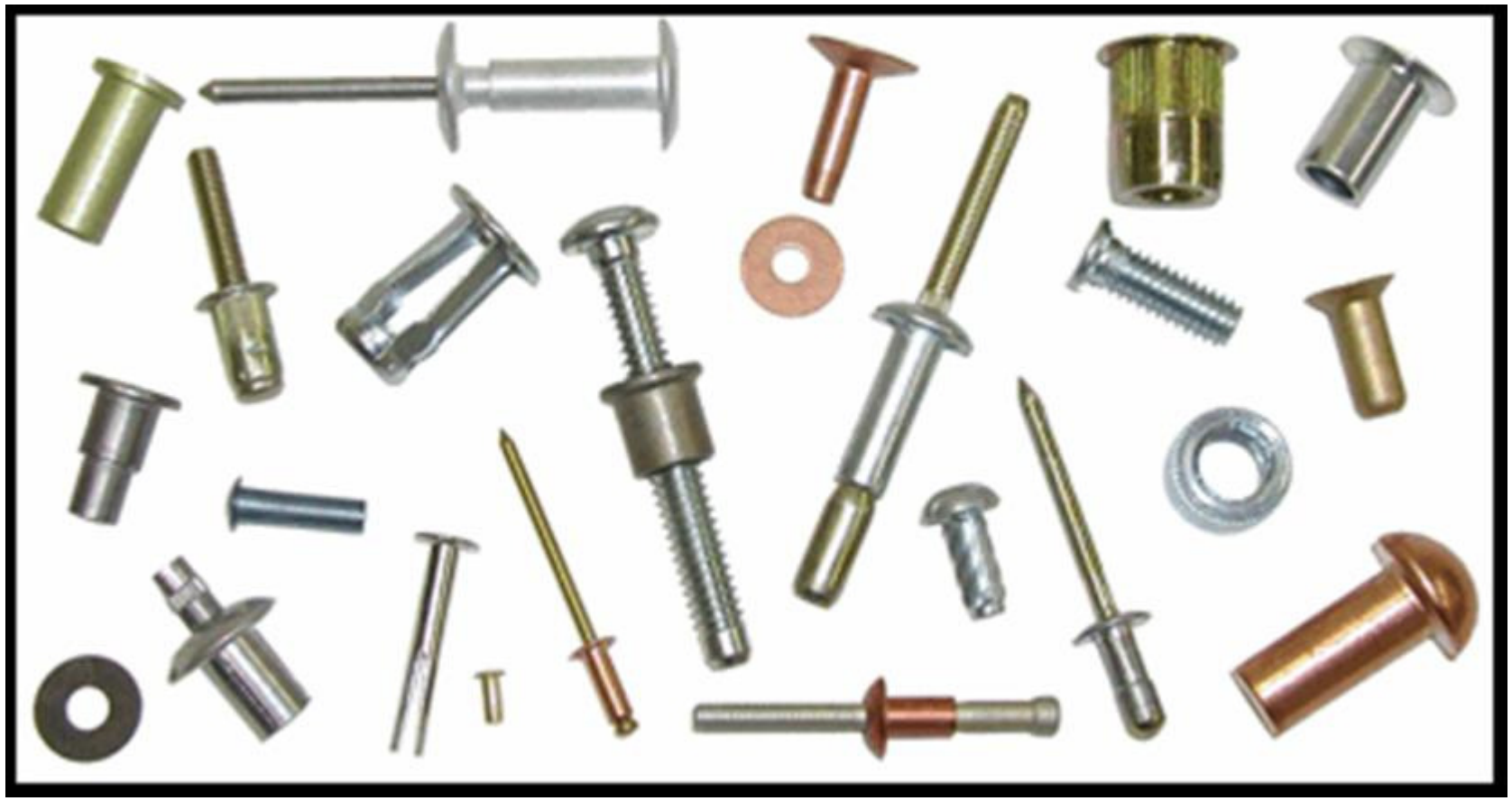
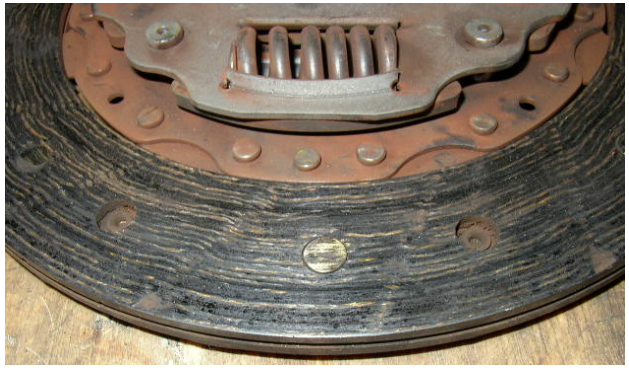
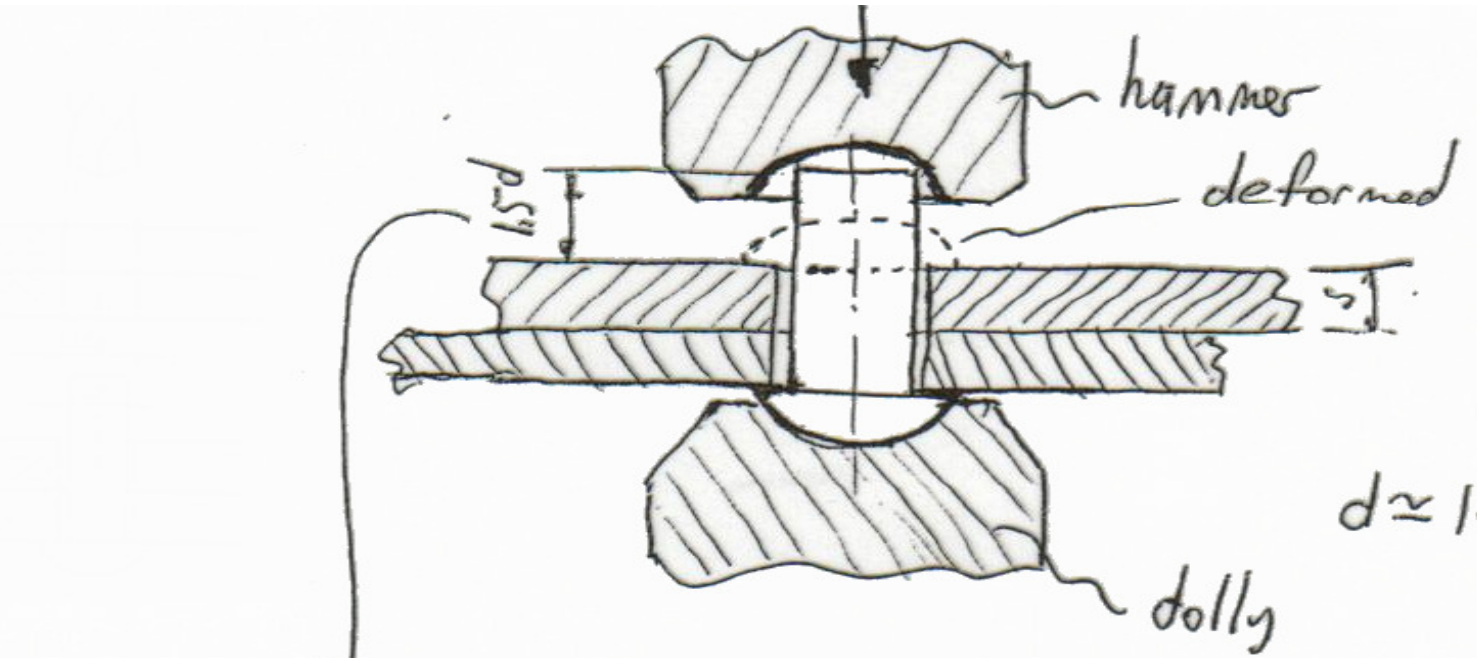
PERÇİNLER
(Rivets)



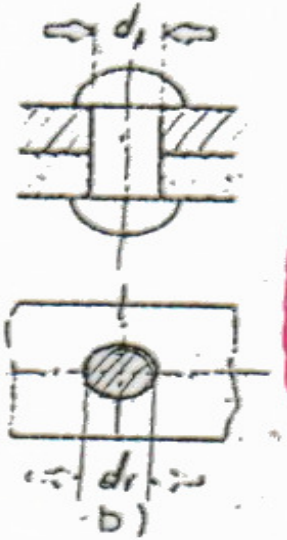
Rivets are metal pins with a head and are used to attach assembled parts permanently. Rivets are available in a variety of head styles and generally are used for sheet metal, such as the skin of an aircraft attached to the frame, or ship parts. Larger rivets are used in steel structures, such as bridges, ships, and boilers.

Basically, a **rivet** is a ductile metal pin that is inserted through holes in two or more parts, and having the ends formed over to securely hold the parts.





$d \simeq 1.8\ s$



For button heads if $d < 20$

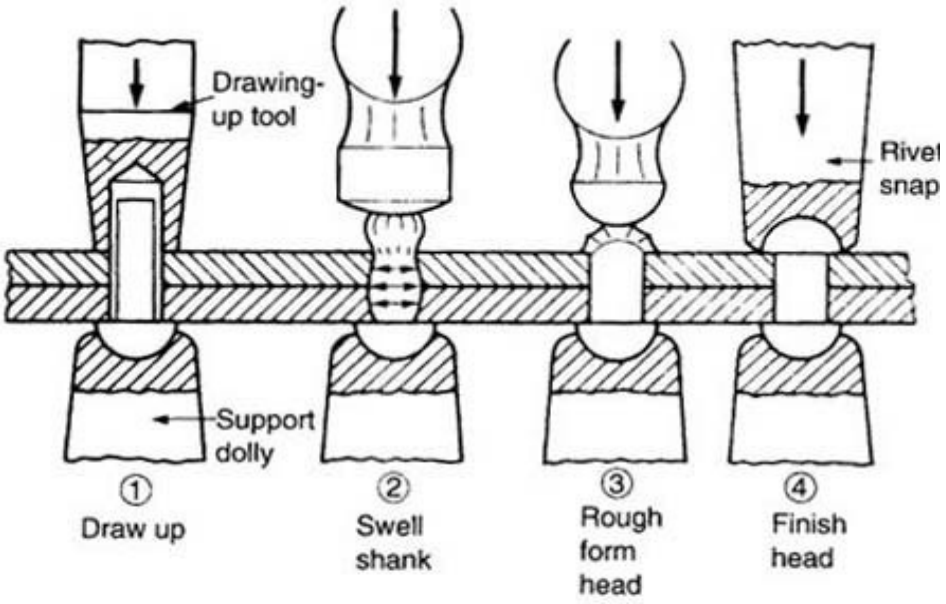
if $d > 20 \Rightarrow 1.7\,d$

round top countersun { heads $\longrightarrow 1.2\,d$

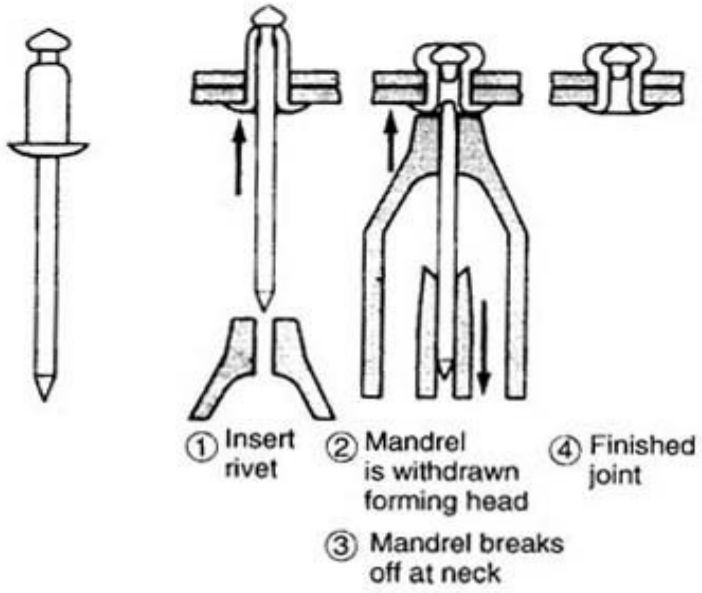
Countersun { heads $\longrightarrow (0.5 \sim 0.7)\,d$

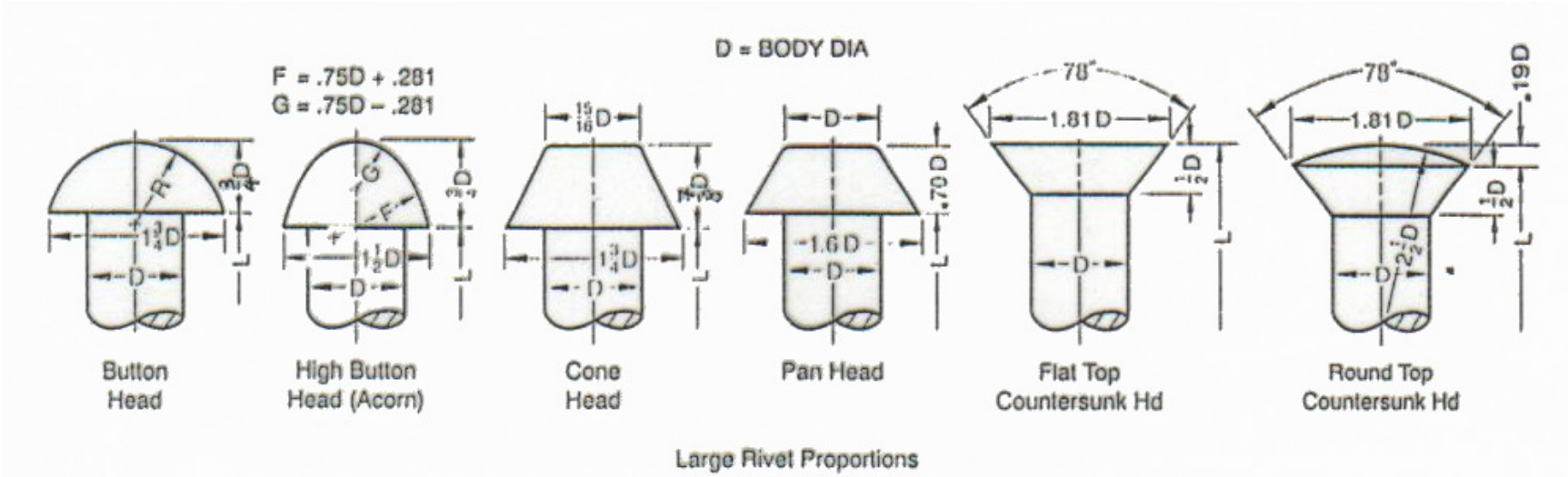
$d_1 = d_{rivet} + (0.2 \sim 0.5)$ [mm] if $d_{rivet} < 10$

$+ 1$ [mm] if $d_{riv.} > 10$

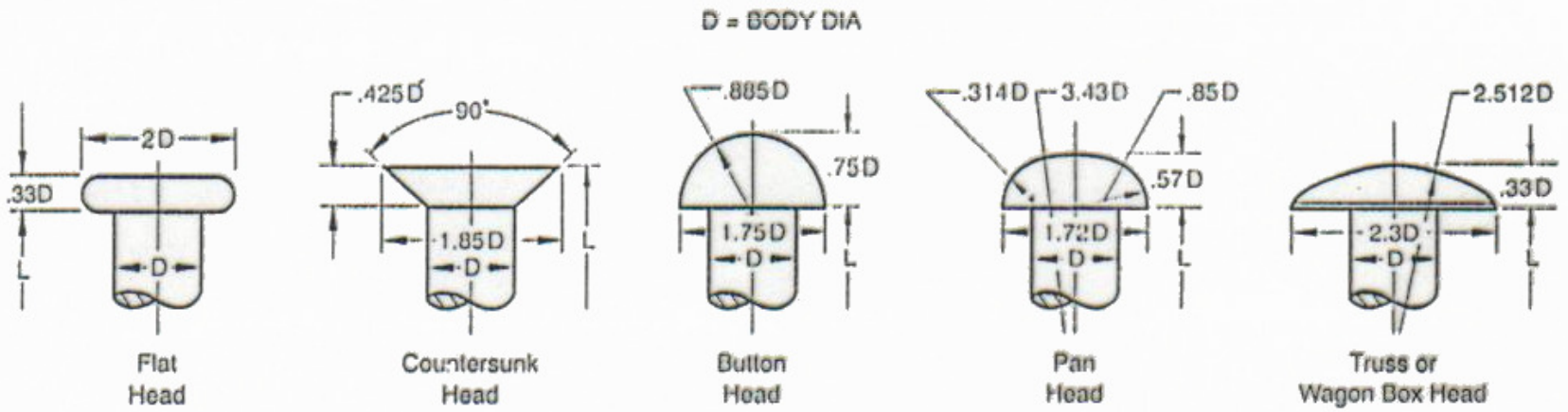


(a) Closing a rivet



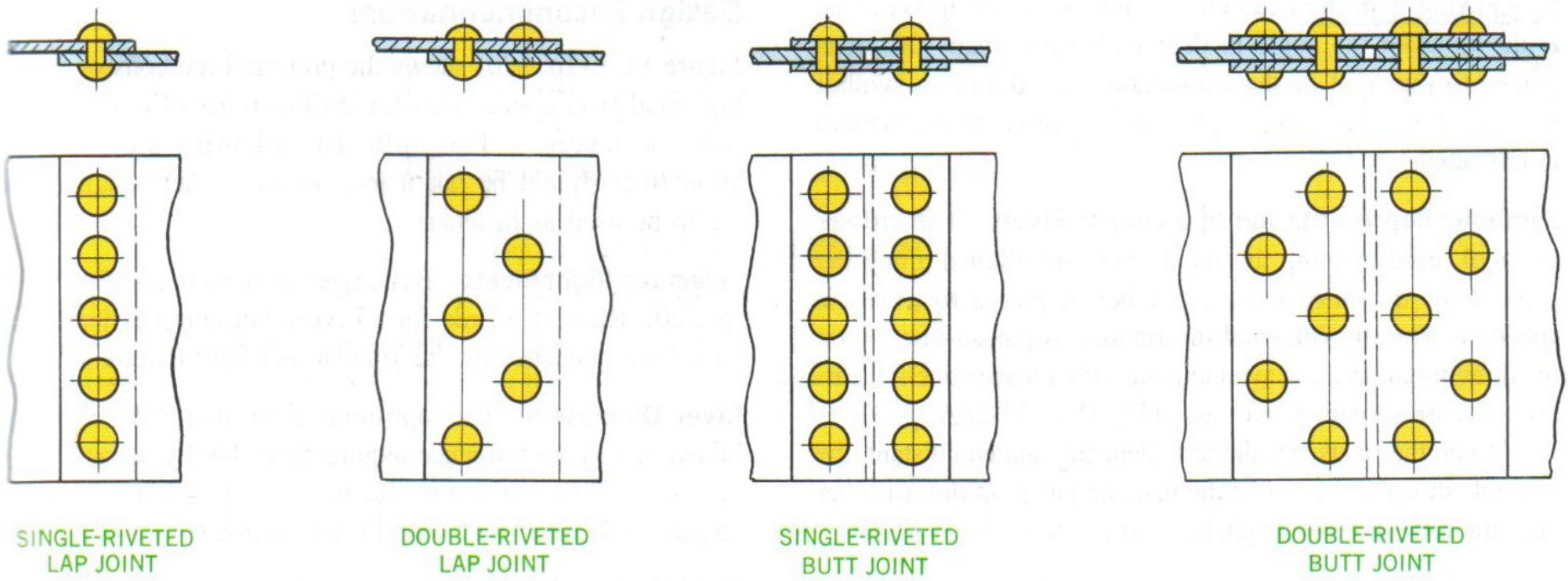


Large Rivet Proportions



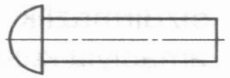
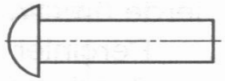
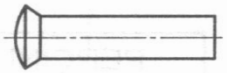
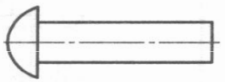
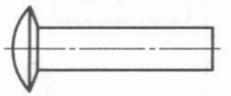
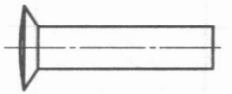
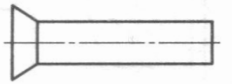
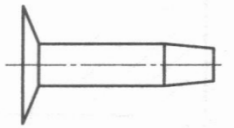
Small Rivet Proportions

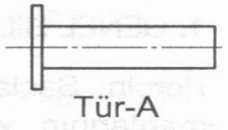
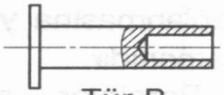
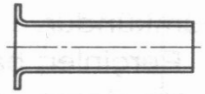
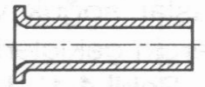
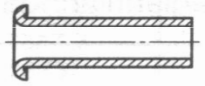
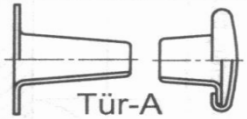
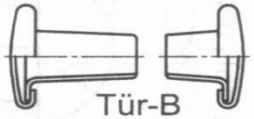
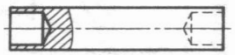
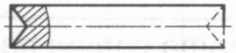
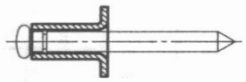
Standard Large and Small Rivets and Proportion Representations



Common riveted joints.

PERÇİN ÇEŞİTLERİ

Perçin adı	Standardı	Perçin şekli
Çapı 10-36 mm olan perçinler		
Çelik inşaat için yuvarlak başlı perçin	TS 94/2	
Kazan yapımı için yuvarlak başlı perçin	TS 94/3	
Havşa mercek başlı perçin	TS 94/6	
Çapı 1-9 mm olan perçinler		
Yuvarlak başlı perçin	TS 94/1	
Yassı yuvarlak başlı perçin	TS 94/4	
Havşa mercek başlı perçin	TS 94/5	
Havşa -yassı mercek başlı perçin	TS 94/7	
Havşa -düz başlı perçin	TS 94/8	
Havşa -düz başlı ucu konik perçin (Kayışlar için)	TS 94/9	

Perçin adı	Standardı	Perçin şekli
Balatalar için Silindir başlı perçin	TS 94/10	 Tür-A  Tür-B
İçi delik Banttan çekilmiş perçin	TS 94/11	
İçi delik Borudan yapılmış perçin	TS 94/12	 Tür-A  Tür-B
İçi delik İki parçalı perçin	TS 94/13	 Tür-A  Tür-B
Başsız perçin	TS 94/14	 Tür-A  Tür-B
Kör perçin	DIN 7337	

PERÇİN MALZEMELERİ

Perçinler; çelik, alüminyum, bakır ve bunların alaşımlarından yapılır.

Çelik perçinler, **TS 1909**'a göre, aşağıda adı ve standardı verilen çeliklerden yapılır.

a. Düşük karbonlu çelik.....**TS 2837**
b. Soğuk şişirme ve çekme çelikler..... **TS 5287**
c. Otomat çelikleri.....**TS 3051**
d. Alaşımsız parlak çelik.....**TS 3186**
e. Filmaşin..... **TS 2348**
f. Islah çeliği.....**TS 2525**
g. Sementasyon çeliği.....**TS 2850**
h. Genel yapı çeliği.....**TS 2162**

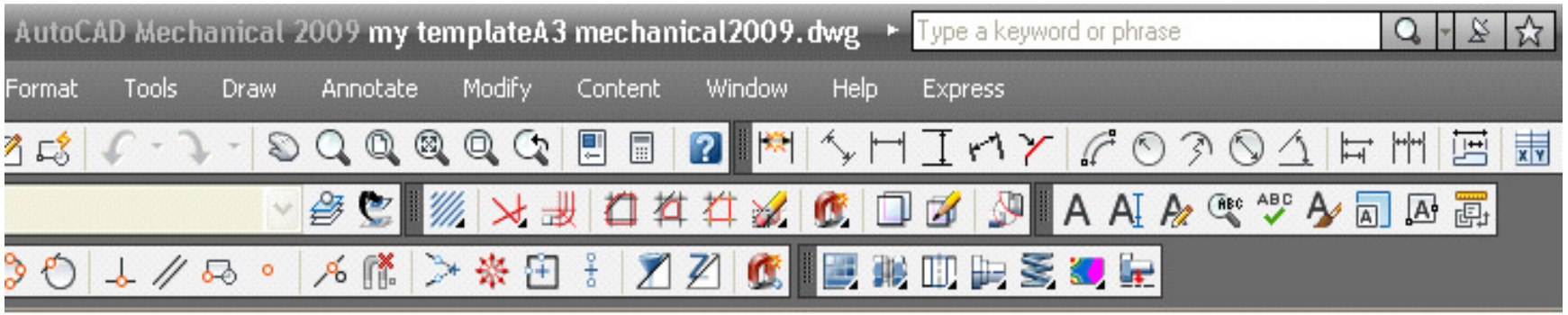
Karbonlu çelikler; genel olarak yumuşak ve sert perçin çeliği olarak ifade edilir.

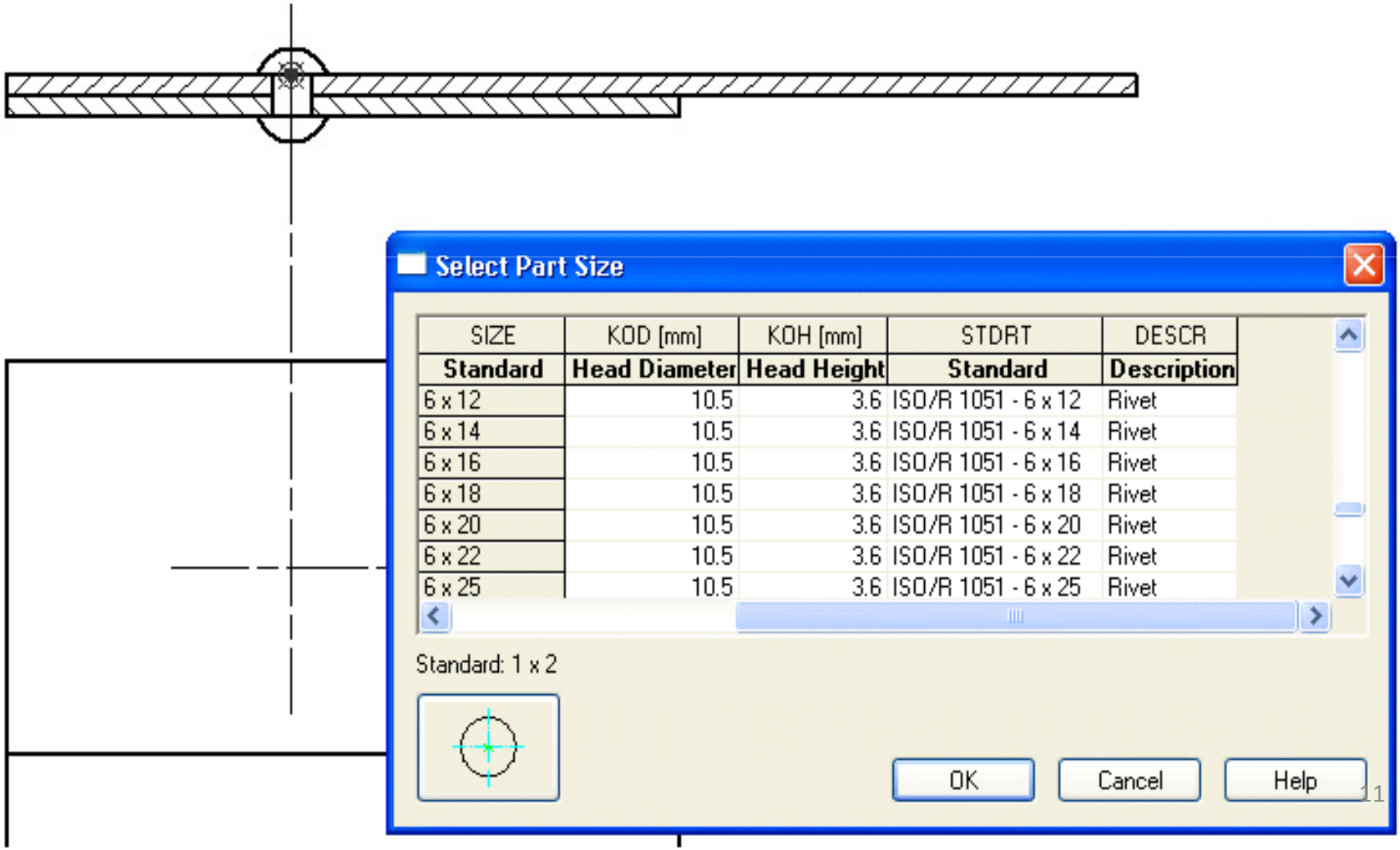
YPÇ- Yumuşak perçin çeliği. Çekme dayanımı 34~42 kgf/mm^2 dir.

SPÇ- Sert perçin çeliği. Çekme dayanım 44~52 kgf/mm^2 dir.

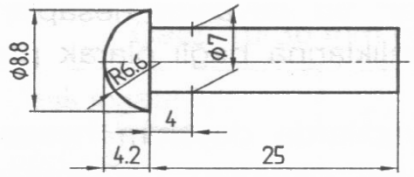
Bakır perçinler; rafine ve elektrolit bakırdan yapılır ve **Cu** ile gösterilir. Pirinç perçinler; **Pr58, Pr60, Pr63** gerecinden yapılır. Alüminyum ve alüminyum alaşımlarından yapılan perçinler; **Al, AlMg, AlCuMg** kısa ifadeleriyle belirtilir.

Alüminyum ve alüminyum alaşımlarından yapılan perçinler **TS 970**'e göre, bakır perçinler **TS 575**'e ve bakır alaşımlı perçinler **TS 564**'e göre standartlaştırılmıştır.

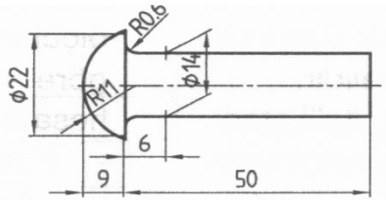

AutoCAD Mechanical 2009 my templateA3 mechanical2009.dwg
Type a keyword or phrase
Format
Tools
Draw
Annotate
Modify
Content
Window
Help
Express


Select Part Size
SIZE
KOD [mm]
KOH [mm]
STDRT
DESCR
Standard
Head Diameter
Head Height
Standard
Description
6 x 12 10.5 3.6 ISO/R 1051 - 6 x 12 Rivet
6 x 14 10.5 3.6 ISO/R 1051 - 6 x 14 Rivet
6 x 16 10.5 3.6 ISO/R 1051 - 6 x 16 Rivet
6 x 18 10.5 3.6 ISO/R 1051 - 6 x 18 Rivet
6 x 20 10.5 3.6 ISO/R 1051 - 6 x 20 Rivet
6 x 22 10.5 3.6 ISO/R 1051 - 6 x 22 Rivet
6 x 25 10.5 3.6 ISO/R 1051 - 6 x 25 Rivet
Standard: 1 x 2
OK
Cancel
Help

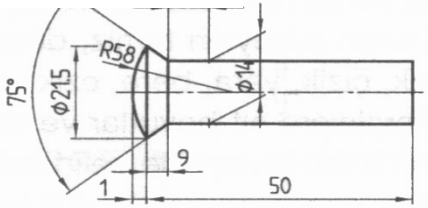
Rivet Dimensioning, Rivet Designation Notes



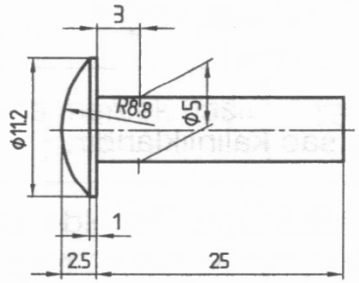
Perçin TS 94/1- 7x25- Fe 34



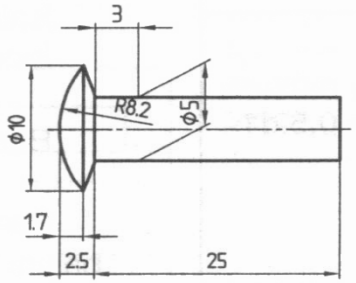
Perçin TS 94/2- 14x50- Fe 34



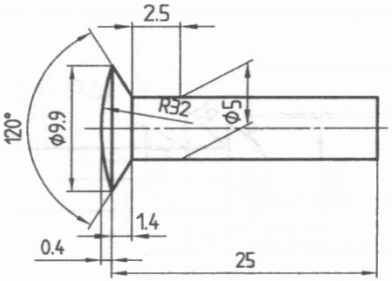
Perçin TS 94/6- 14x50- Fe 34



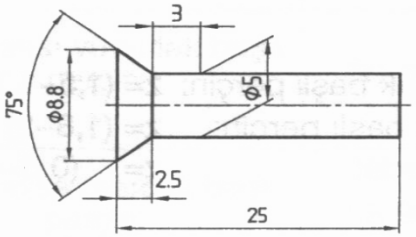
Perçin TS 94/4- 5x25- Fe 34



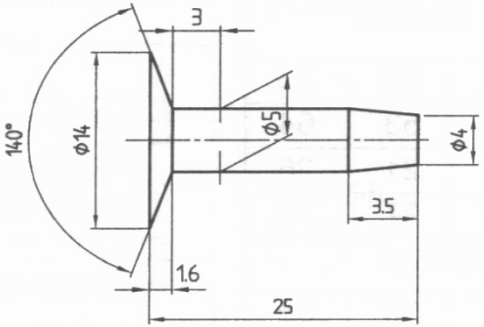
Perçin TS 94/5- 5x25- Fe 34



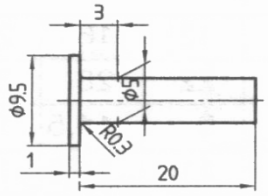
Perçin TS 94/7- 5x25- Fe 34



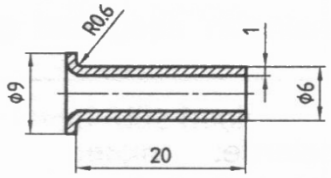
Perçin TS 94/8- 5x25- Fe 34



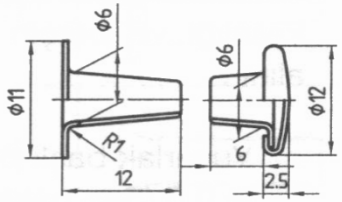
Perçin TS 94/9- 5x25- Fe 34



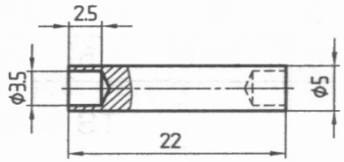
Perçin TS 94/10- 5x20- Fe 34



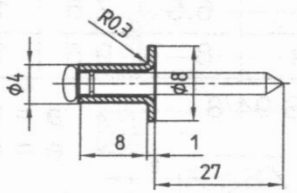
Perçin TS 94/11- A6x1x20- Cu



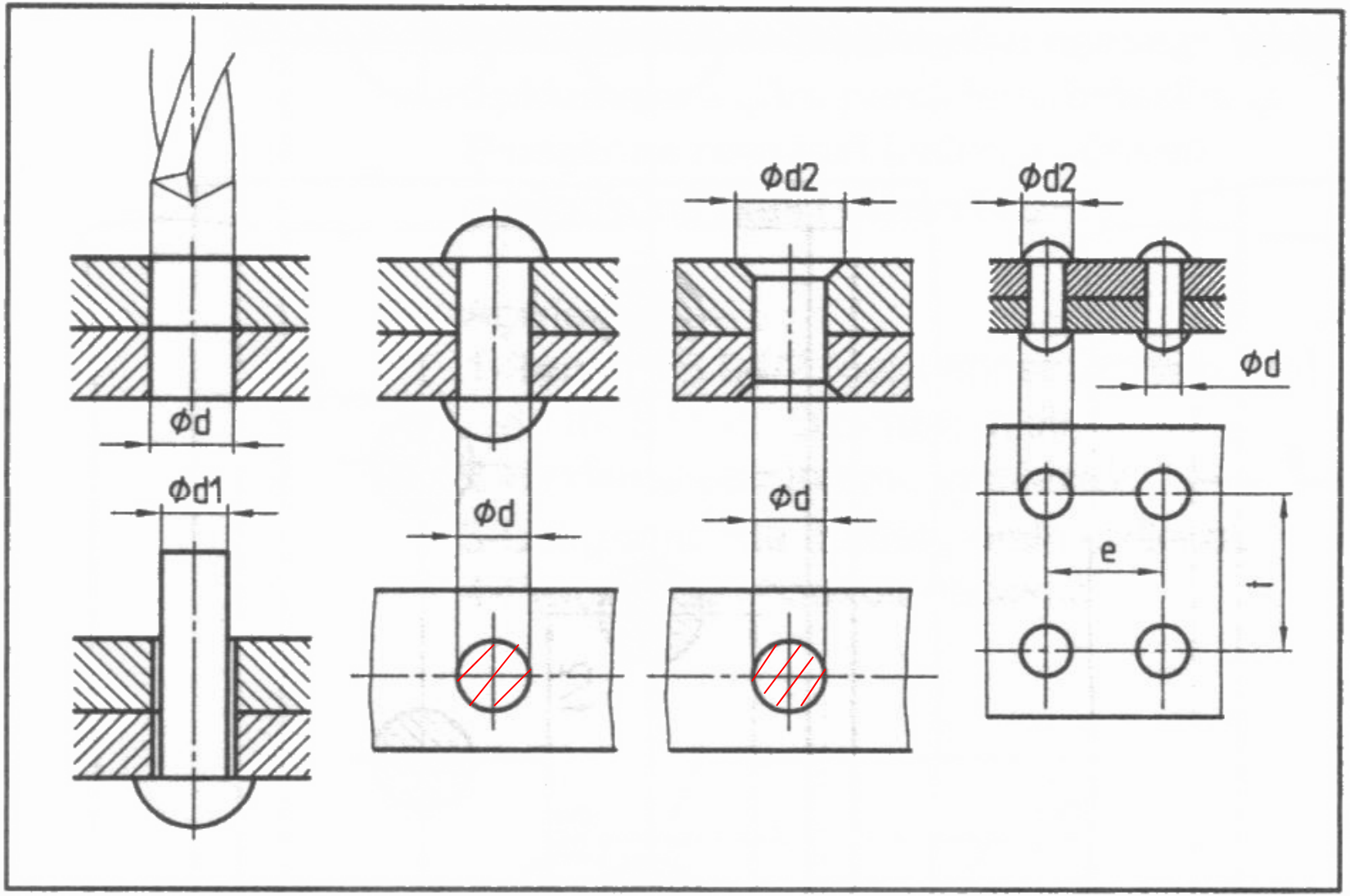
Perçin TS 94/13- A6x11X12- CuZn37

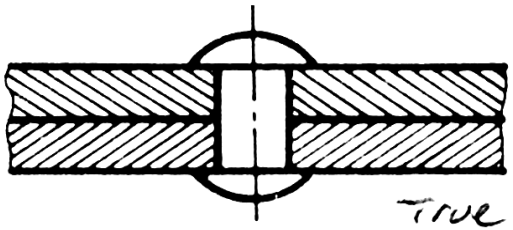


Perçin TS 94/14- A5x22- AlMg5

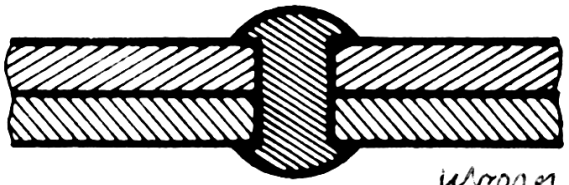


Perçin DIN 7337- A4x8- Al

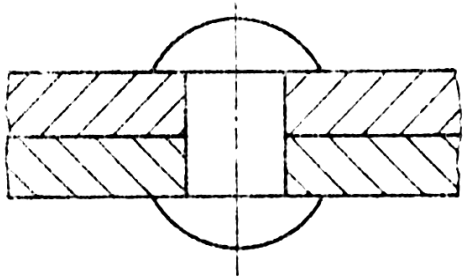

Φd
Φd1
Φd2
Φd
Φd2
Φd
Φd
e

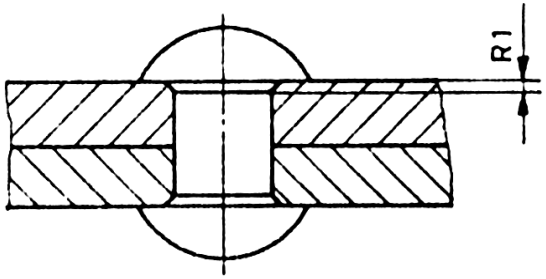


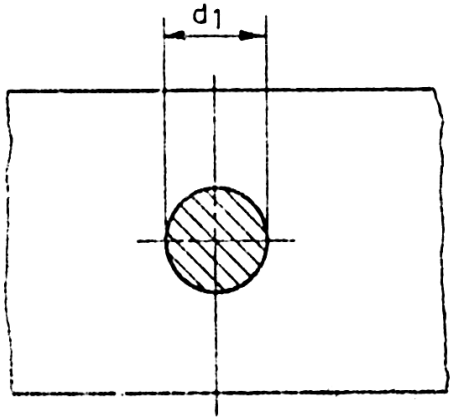
True

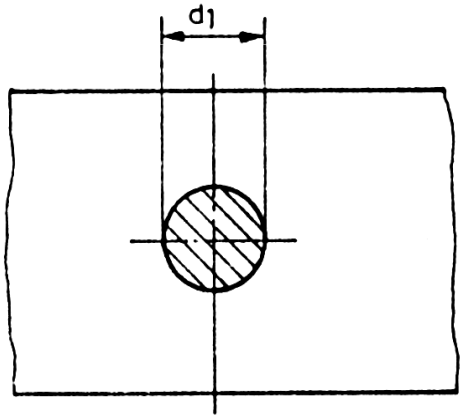


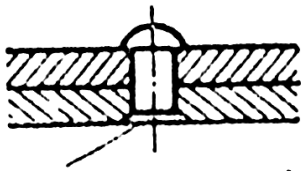
Wrong



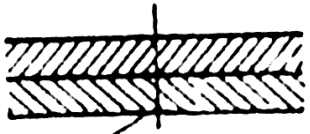




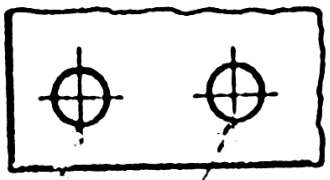




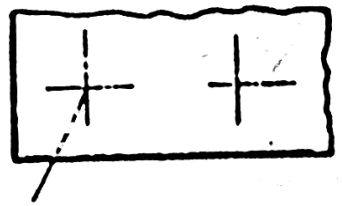
Havşa başlı perçin 3x12 TS 96/2 YPÇ



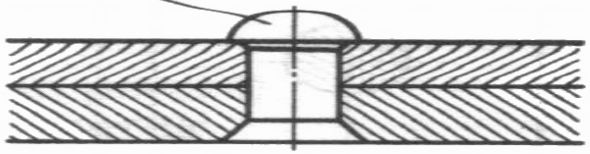
Havşa başlı perçin 3x12 TS 96/2 YPÇ



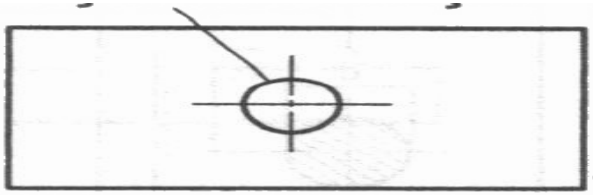
Havşa başlı perçin 3x12 TS 96/2 YPÇ



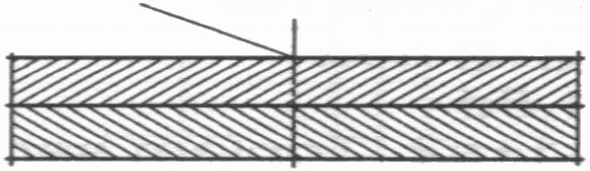
Perçin TS 94/1- 7x25- Fe 34



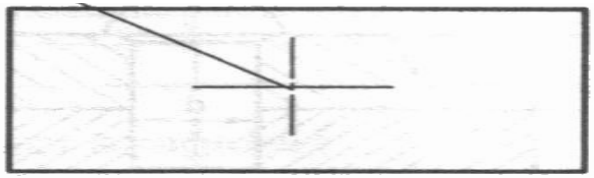
Perçin TS 94/1- 7x25- Fe 34



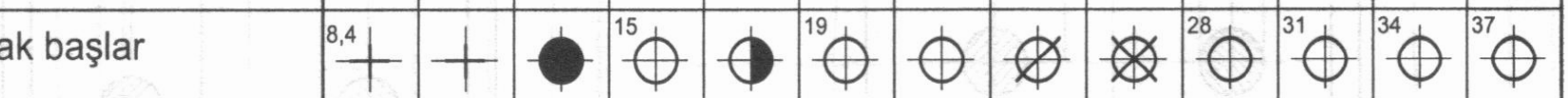
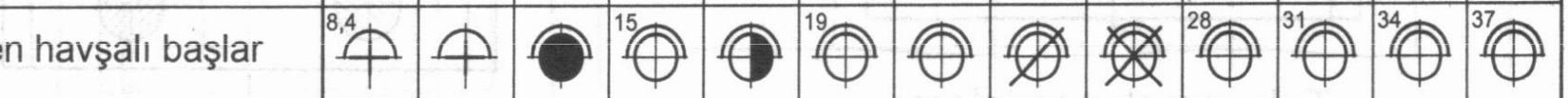
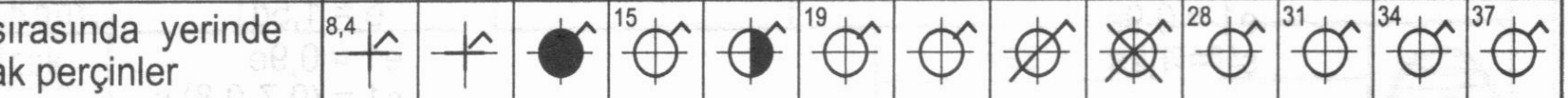
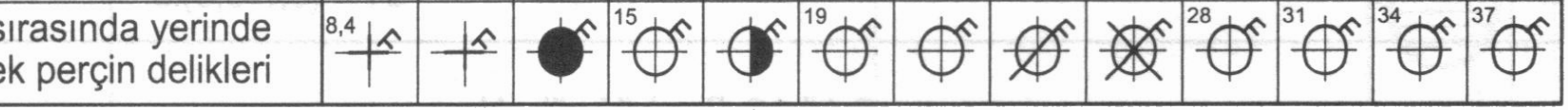
Perçin TS 94/1- 7x25- Fe 34

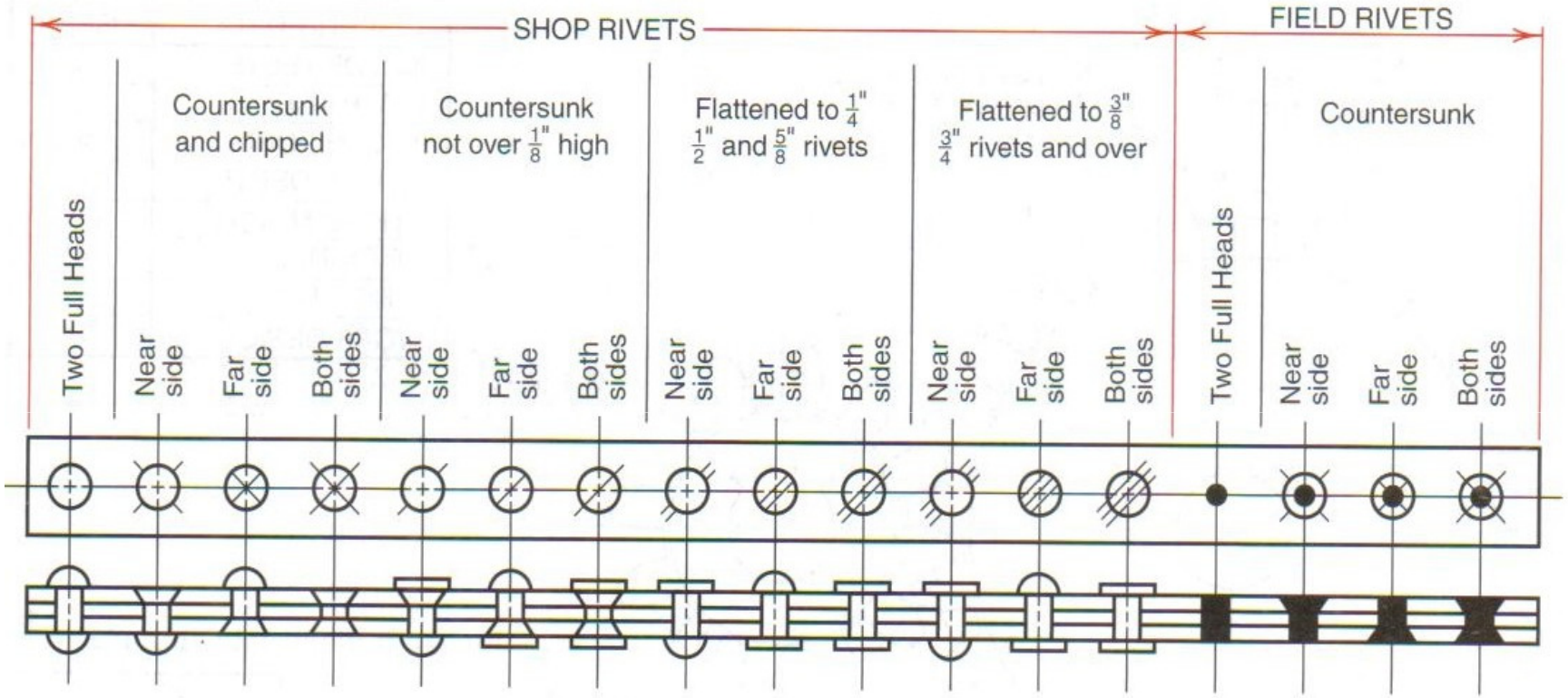


Perçin TS 94/1- 7x25- Fe 34



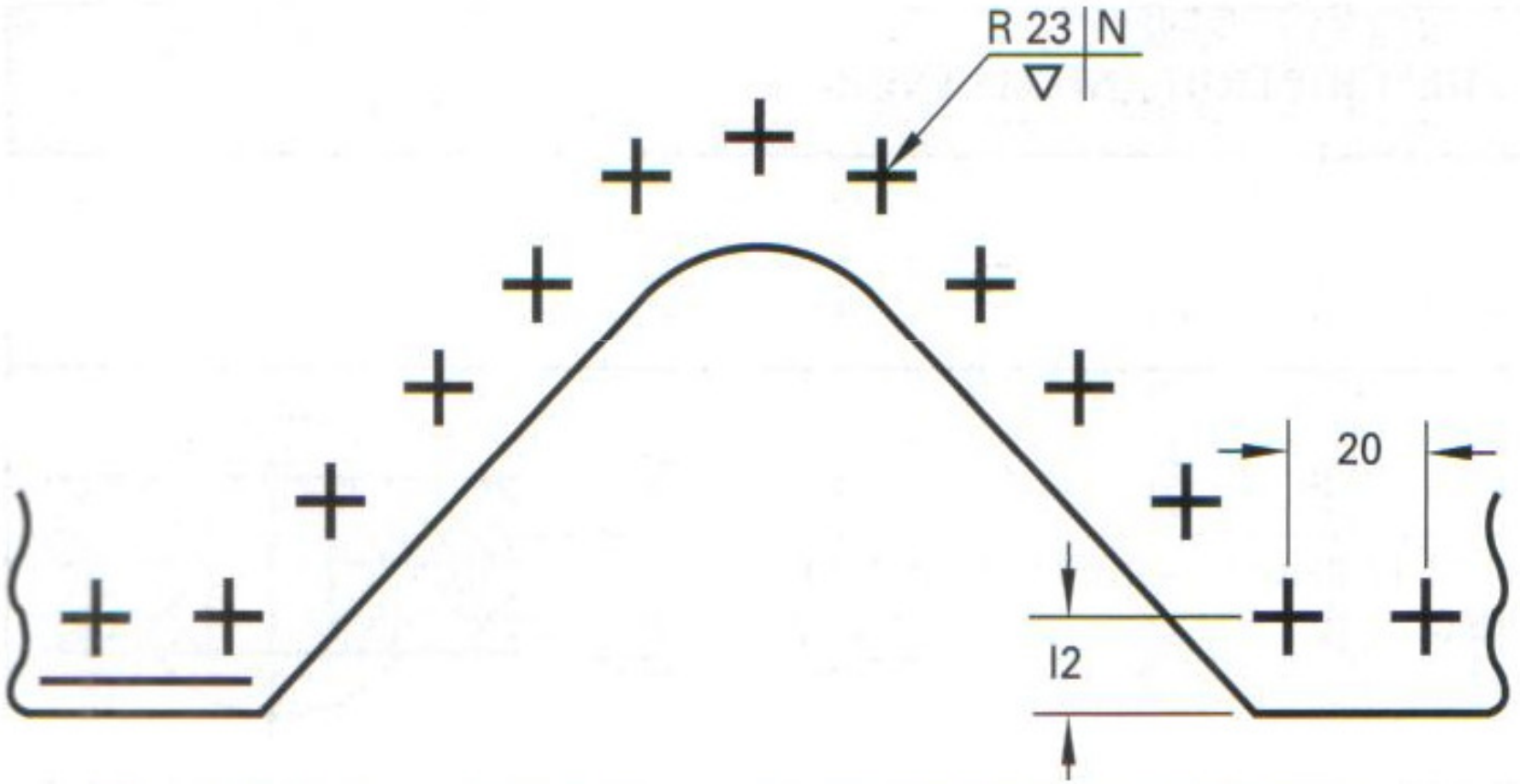
Rivet Symbols DIN 407

PERÇİNLERİN SEMBOLLERLE GÖSTERİLMESİ														
Perçin çapı mm			8	10	12	14	16	18	20	22	24	27	30	33	36
Perçin çapı deliği mm			8,4	11	13	15	17	19	21	23	25	28	31	34	37
Sembollerle gösteriliş	Yuvarlak başlar														
	Havşa başlar	Üstten havşalı başlar													
		Alttan havşalı başlar													
		İki taraflı havşalı başlar													
	Montaj sırasında yerinde yapılacak perçinler														
	Montaj sırasında yerinde delinecek perçin delikleri														



Rivet symbols used on engineering drawings

Symbolic representation for a set (installed) rivet used on aerospace equipment.

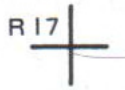
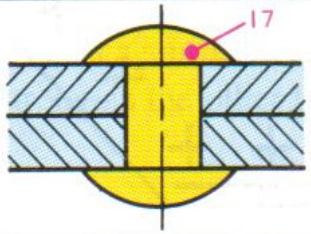
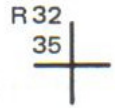
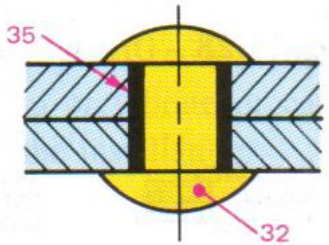
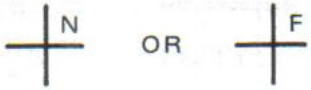


Drawing callout for rivets used on aerospace equipment.

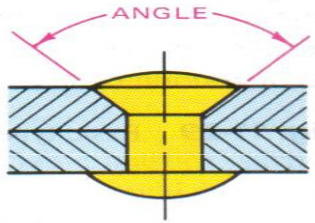
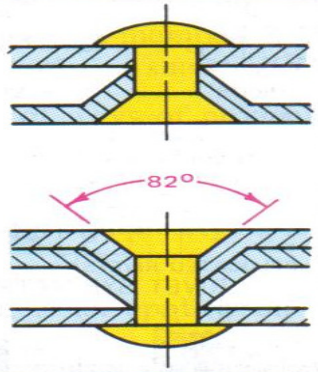
The symbolic representation for a set (installed) rivet consists of a cross marking its position. This representation is supplemented by the relevant information regarding rivet and rivet assembly

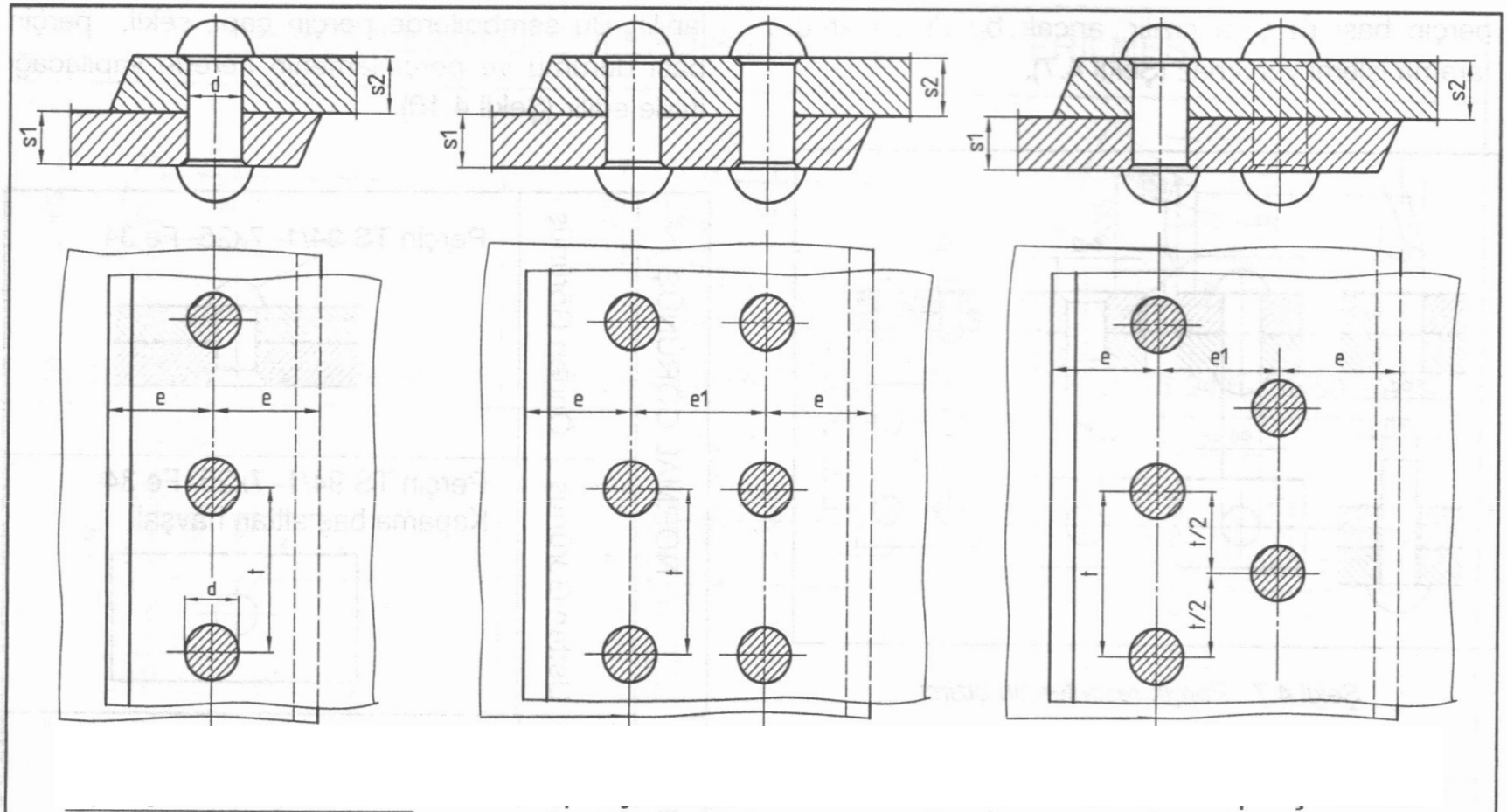
The upper left-hand quadrant of the symbol shows the part number for the rivet used in the item list on the drawing or in a table on the drawing that clearly defines the part. This number is preceded by the capital letter R Where a composite rivet is used (rivet plus sleeve), the item reference numbers for both rivet and sleeve are shown

The upper right-hand quadrant of the symbol contains a capital letter giving the position of the preformed head

SYMBOLIC REPRESENTATION	DESCRIPTION AND MEANING
A 	POSITION OF RIVET
B 	SOLID RIVET R 17 = RIVET, ITEM REFERENCE 17 SHOWN ON ITEM LIST OR TABLE ON THE DRAWING 
C 	COMPOSITE RIVET R32 = RIVET, ITEM REFERENCE 32 SHOWN ON ITEM LIST OR TABLE ON THE DRAWING 35 = SLEEVE, ITEM REFERENCE 35 SHOWN ON ITEM LIST OR TABLE ON THE DRAWING 
D 	N = PREFORMED HEAD OF THE RIVET ON NEAR SIDE F = PREFORMED HEAD OF THE RIVET ON FAR SIDE

The lower left-hand quadrant of the symbol contains information on the position of either a countersink or a dimpling, or a combination of both. The countersink to be made on the parts to be riveted is shown by an equilateral triangle oriented to indicate either near or far side . If the value of the angle in degrees is other than 100°, it is placed on the right of the countersink symbol. When dimpling of the sheets to be riveted is required, it is shown by an open isosceles triangle oriented to indicate either near or far side . If the value of the angle in degrees is other than 100°, it is placed on the right of the dimpling symbol. When the combination of a countersink on one part and a dimpling on the other part is required, it is indicated by showing both the countersink and the dimpling symbols. If the value of the angle in degrees is other than 100°, it is placed to the right of the countersink and dimpling symbol . The lower right-hand quadrant of the symbol is left blank.

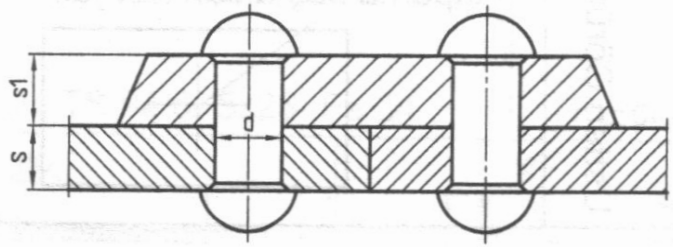
E	100° COUNTERSINK ON NEAR SIDE 82° COUNTERSINK ON FAR SIDE 100° COUNTERSINK ON BOTH SIDES	
F	100° DIMPLING ON NEAR SIDE TWO SHEETS 82° DIMPLED ON FAR SIDE	
G	FIRST SHEET DIMPLED 100° ON NEAR SIDE SECOND SHEET COUNTERSINK 100° ON FAR SIDE FIRST SHEET DIMPLED 82° ON NEAR SIDE SECOND SHEET DIMPLED 82° ON FAR SIDE	

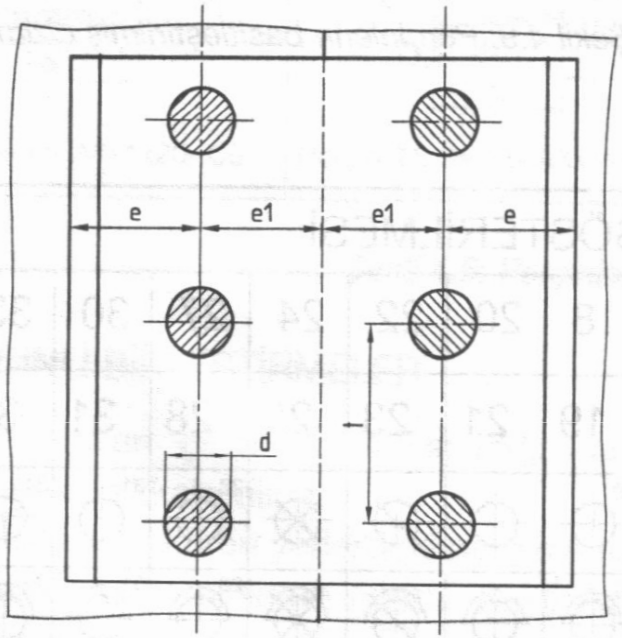


t = 2d+8 mm
e = 1,5d
s = s1+s2

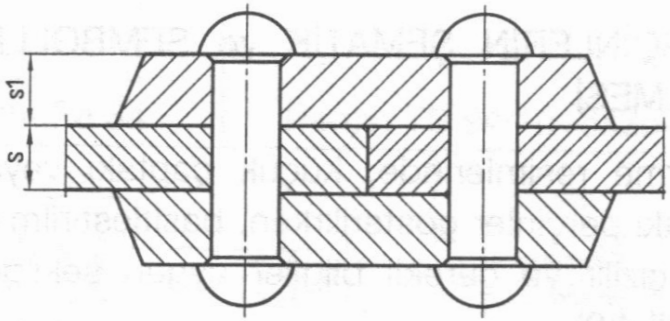
t = 2,6d+10 mm
e = 1,5d
e1 = 0,8 .t

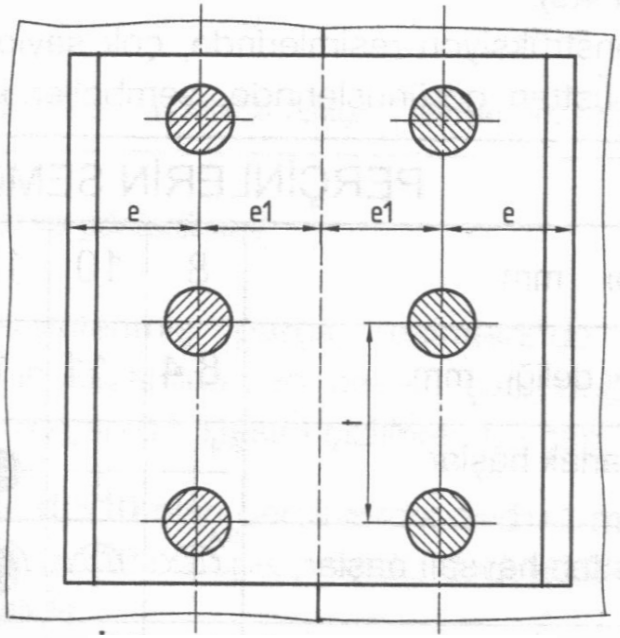
t = 2,6d+15 mm
e = 1,5d
e1 = 0,6 .t





t = 2d+8 mm
e = 1,5d
e1 = 0,9e
s1 = 1,2s





t = 2,8d+8 mm
e = 1,5d
e1 = 0,9e
s1 = (0,7-0,8).s