

**O‘ZBEKISTON RESPUBLIKASI OLIY VA O‘RTA MAHSUS TA‘LIM
VAZIRLIGI**

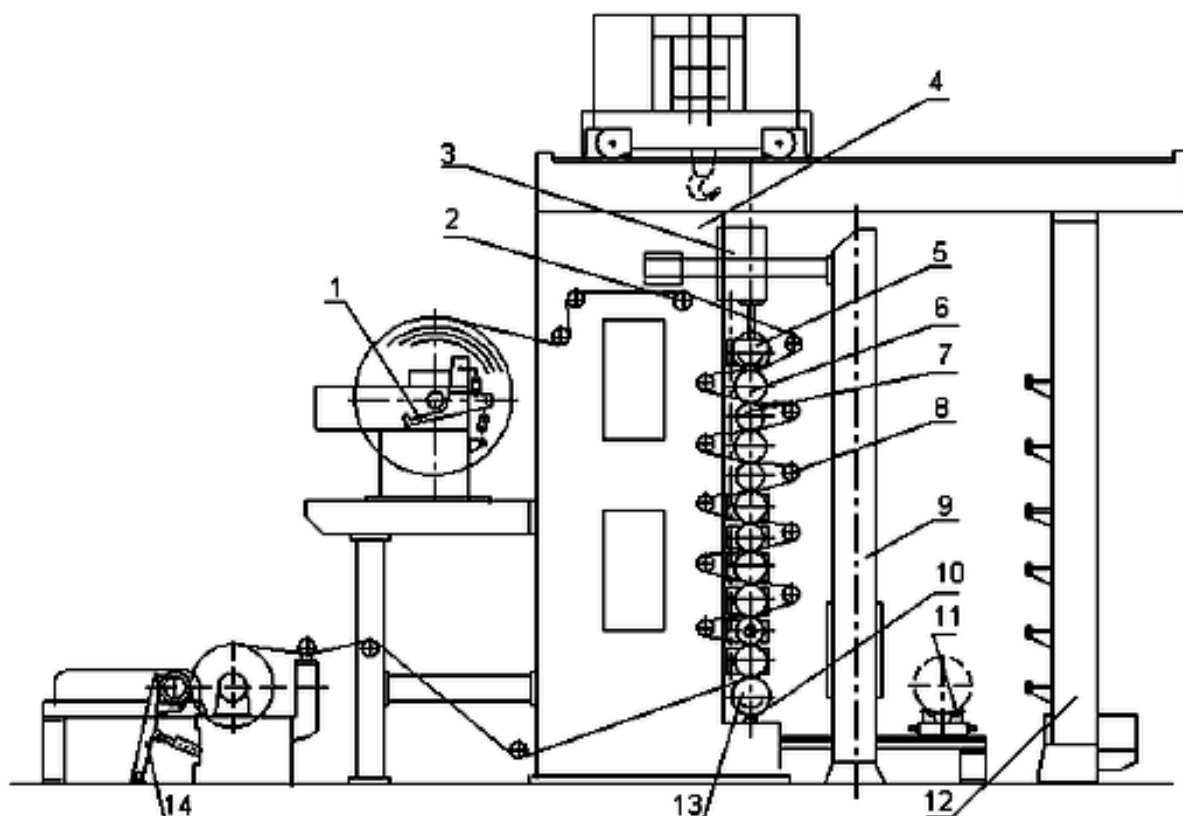
TOSHKENT KIMYO–TEXNOLOGIYA INSTITUTI

**SELYULOZA VA YOG‘OCHSOZLIK TEXNOLOGIYASI
KAFEDRASI**

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**SELYULOZA-QOG‘OZ ISHLAB CHIQARISH KORXONALARI
ASBOB-USKUNALARI FANIDAN LABARATORIYA MASHG‘ULOTI**

Qog‘oz ishlab chiqarish texnologiyasi va jarayonlari mutaxassisligi bo‘yicha
taxsil olayotgan talabalar uchun uslubiy qo‘llanma



TOSHKENT – 2017

Ushbu uslubiy qo‘llanma qog‘oz ishlab chiqarish texnologiyasi va jarayonlari yo‘nalishi bo‘yicha ta’lim olayotgan talabalar uchun mo‘ljallangan. Qo‘llanmada sellyuloza va qog‘oz ishlab chiqarish texnologiyasining asbob-uskunalar sxemasi berilgan. Ushbu uslubiy qo‘llanmada talabalar uchun laboratoriya ishlarini bajarishda texnologiyaga oid bir qancha asbob-uskunalarni tanlash uchun tegishli ma’lumotlar keltirilgan.

Taqrizchilar: TKTi dots. G.Yu. Akmalova;
TTESI dots. A.A. Mirotov.

Mazkur uslubiy qo‘llanma TKTIning ilmiy-uslubiy kengashida (Bayonnoma №___ «___» «_____» 2017 yil) nashrga tavsiya etilgan.

MUNDARIJA

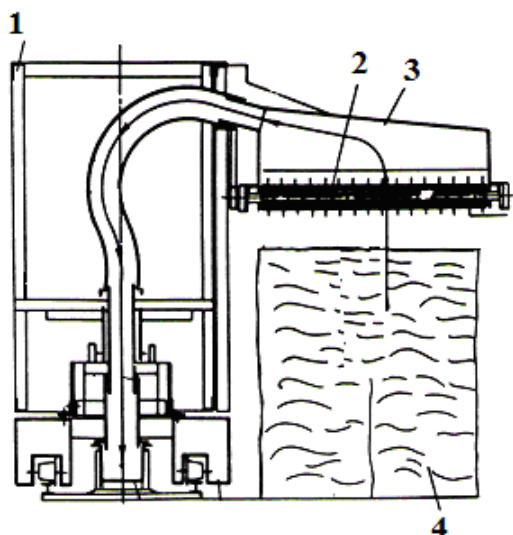
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1. Paxta momig'ini mexanik aralashmalardan tozalash apparati

1-jadval

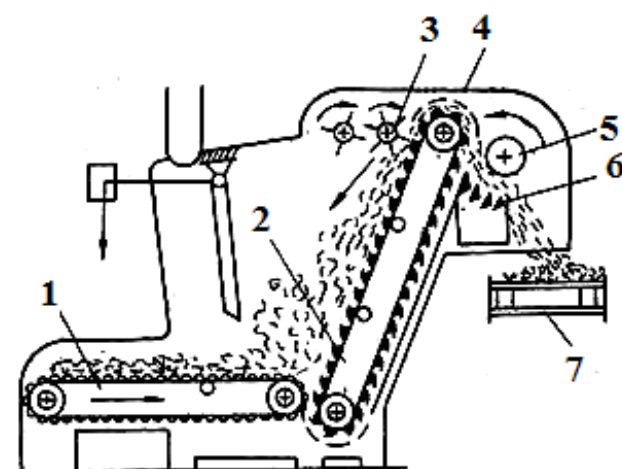
AP-18 markali mashinaning texnik tavsifi

Ishlab chiqarish quvvati, kg/soat	800 gacha
Tolalarning o'rtacha uzunligi, mm	42 gacha
Aralashtirishga tayyorlangan toylar soni:	
birinchisida	24
ikkinchisida	18
Ignali barabanning dvigateli:	
turi	AO10054U3
quvvati, kVt	3
aylanish chastotasi, min ⁻¹	1500
Gabarit o'lchamlari, mm	15 525x3485x3890
Massasi, kg	5600



1-rasm. AP-18 markali mashinaning texnologik sxemasi:
1–aylanish kolonnasi; 2 – pichoqli baraban; 3 – tola o'tkazgich,
4 – paxta momig' toy

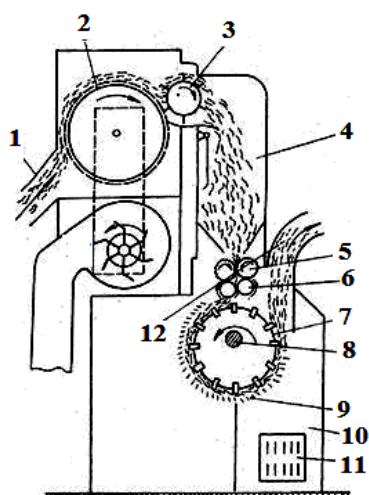
Aralashtirgich-ta'minlagich apparati



2-rasm. Aralashtirgich-ta'minlagich mashinaning texnologik sxemasi

Bu apparatda paxta momig'ini titib aralashtirish quyidagicha bajariladi: tayyor paxta momig' toyi (kip) simlar va o'ralgan bo'zdan echiladi, so'ngra mashina ta'minlagich panjarasi 1 ga uzatiladi. Panjaradagi toy harakatdagi qiya o'rnatilgan ignali panjara 2 ga beriladi. Undan momig' tekislovchi 4 valga beriladi. Mayda titilgan tolalar valdan o'tadi. Mayda tolalar qabul qiluvchi val 5 ga beriladi. So'ngra ular kolosnikli panjara 6 ga urilib, qisman yirik qo'shimchalardan tozalanadi va transpartyor 7 ga keladi.

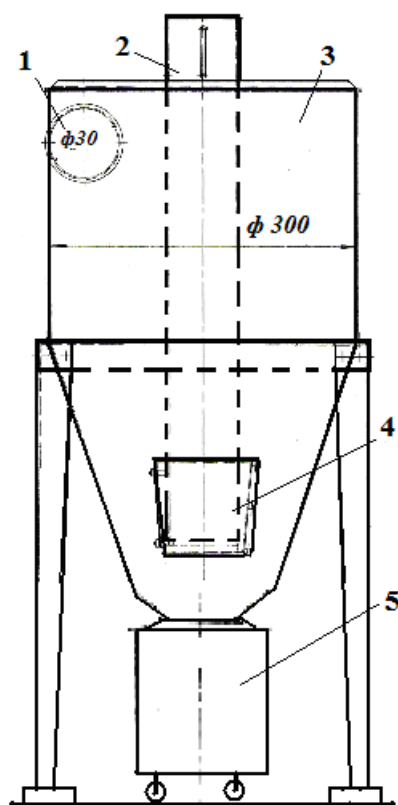
Gorizontol turidagi titish apparati



3-rasm. Gorizontol turidagi titish mashinasining ish uslubi

Bosh ta'minlagichdagi momig' gorizontol titgich apparatining quvuriga havo yordamida uzatiladi va perforlangan baraban yuzasi 2 ga yupqa qatlam ko'rinishda so'riladi. Undan val 3 yordamida olinib bunker 4 ga beriladi. So'ngra u val 5 va 700...800 aylana/min tezlikda harakatlanuvchi ta'minlovchi silindr 7 yordamida zichlanadi. Pichoqli baraban – gorizontol val 8 ga o'rnatilgan disklardan iborat bo'ladi. Pichoqli baraban tagiga panjara 9 o'rnatilgan. Pichoqlar bilan mayda tolalar ajratib olinadi va qisman tozalanadi. Iflos chiqindilar kamera 10 ga uzatiladi. Zaslonka 11 teshiklari orqali xonadan havo so'riladi va titilgan momig' quvur 12 orqali mashinadan chiqariladi.

Siklon apparati

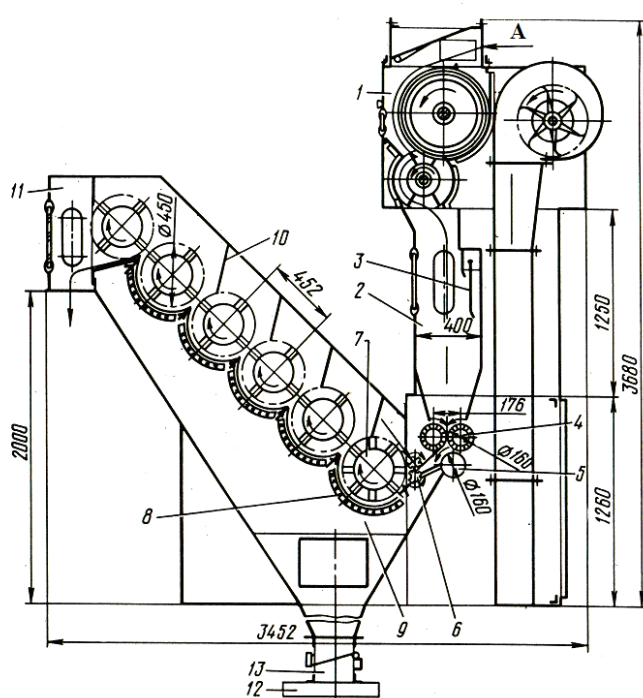


4-rasm. Siklon sxemasi:

- 1 – shtutser; 2 – quvur; 3 – korpus;
- 4 - kuzatish darchasi;
- 5 – chiqindi to'plagich arava.

“S” markali siklonlarning texnik tavsifi

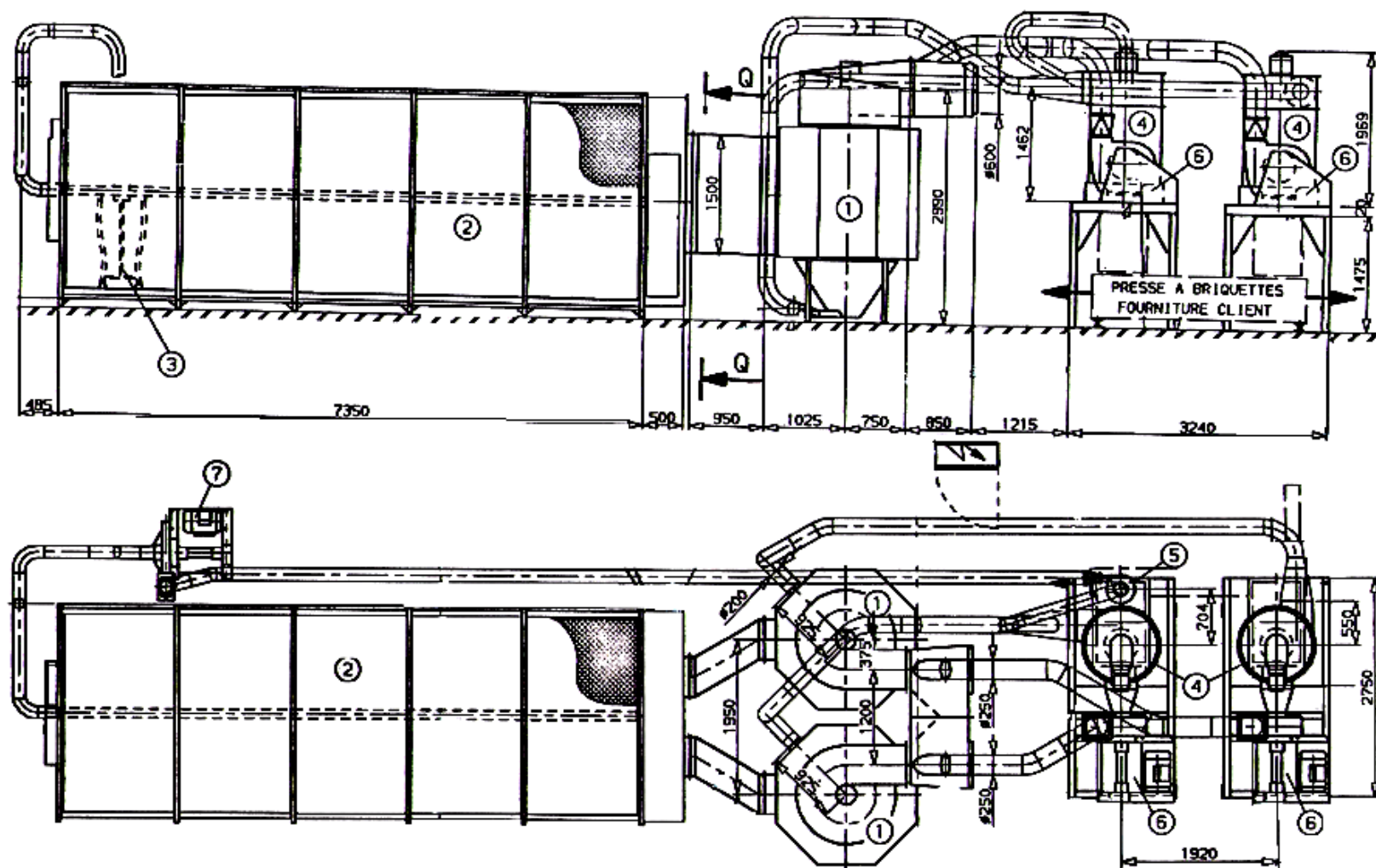
Siklon nomi	Siklon diametri, mm	Quvurni kirishdagi yuzasi, m ²	Ishlab chiqarish quvvati (havoga nisbatan), m ³ /chas	Balandligi, mm	Massasi, kg
Siklon S-250	250	0,00845	500-700	1150	18,1
Siklon S-300	300	0,01235	700-1000	1380	26,3
Siklon S-375	375	0,01755	1000-1500	1720	36,0

ON-6-4M markali tozalagich apparati**5-rasm. ON-6-4M tozalagichning bo'ylama sxemasi:**

- 1 – kondensor; 2 – bunker;
 3 – balanslovchi po'lat sterjen;
 4 – chiqaruvchi silindr;
 5 – ushlab turuvchi silindr;
 6 – ta'minlovchi silindr;
 7 – pichoqli baraban;
 8 – panjara; 9 – chiqindi uchun kamera;
 10 – shit; 11 – bunker;
 12 – chiqindini chiqarib tashlash tizimi;
 13 – klapan.
 A – mahsulot yo'li.

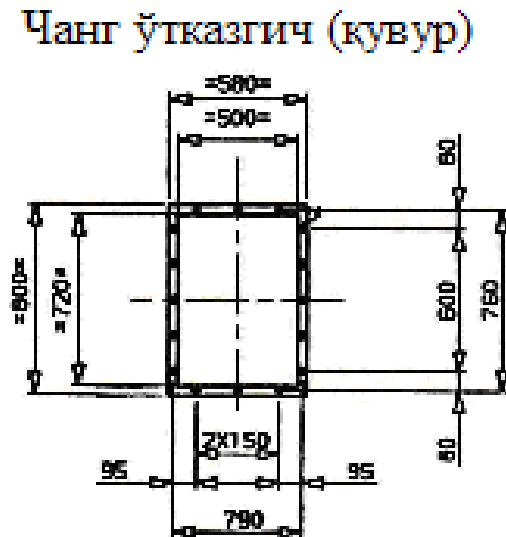
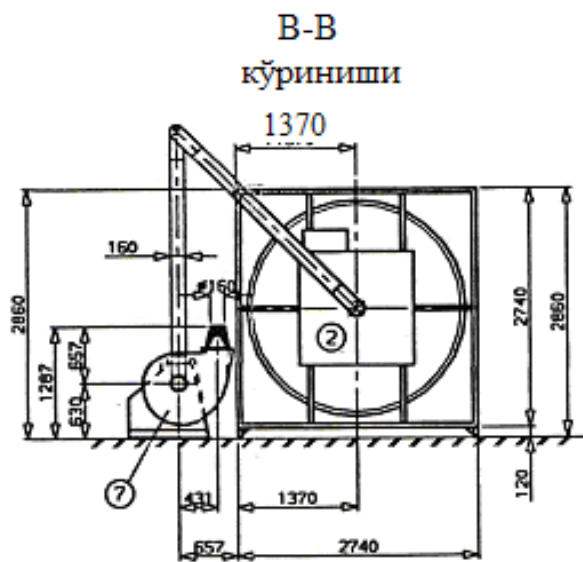
Chang tozalash filtri apparati

Chang-havo filtrning asosiy va ayrim elementlarining chizmasi va o'lchamlari quyidagi rasmlarda keltirilgan.

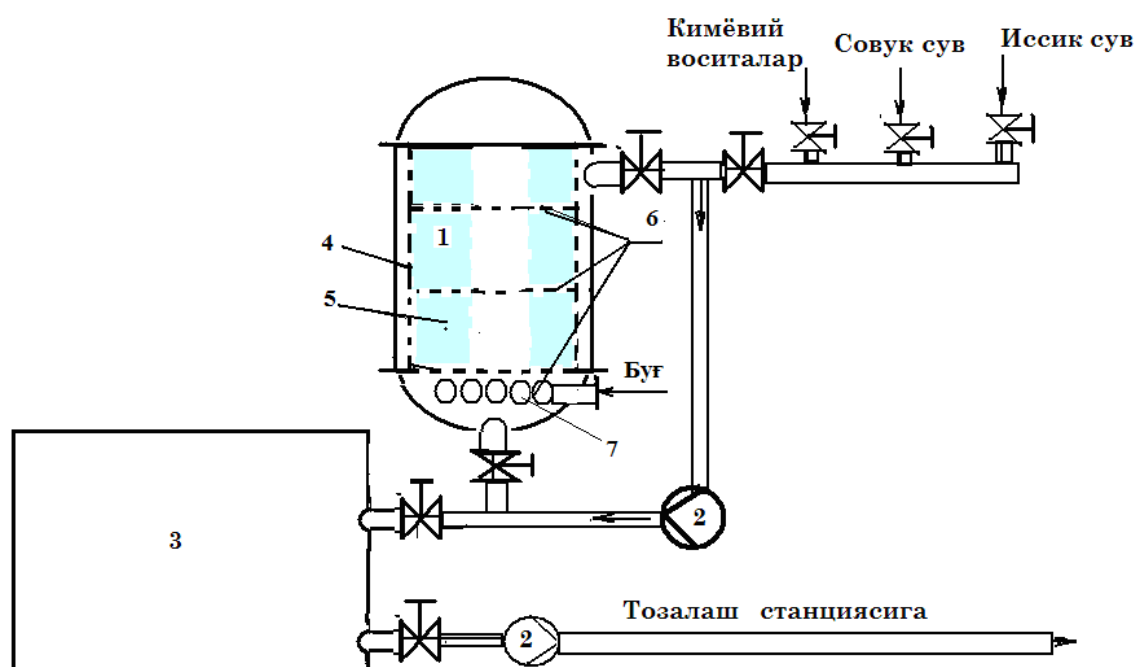


6-rasm. Chang-havo filtri:

1 – qisman tozalash apparati (siklon); 2 – filtr; 3 - so'ruvchi soplo; 4 – chiqindilarni zichlagich; 5, 6, 7 – havo parraklari.

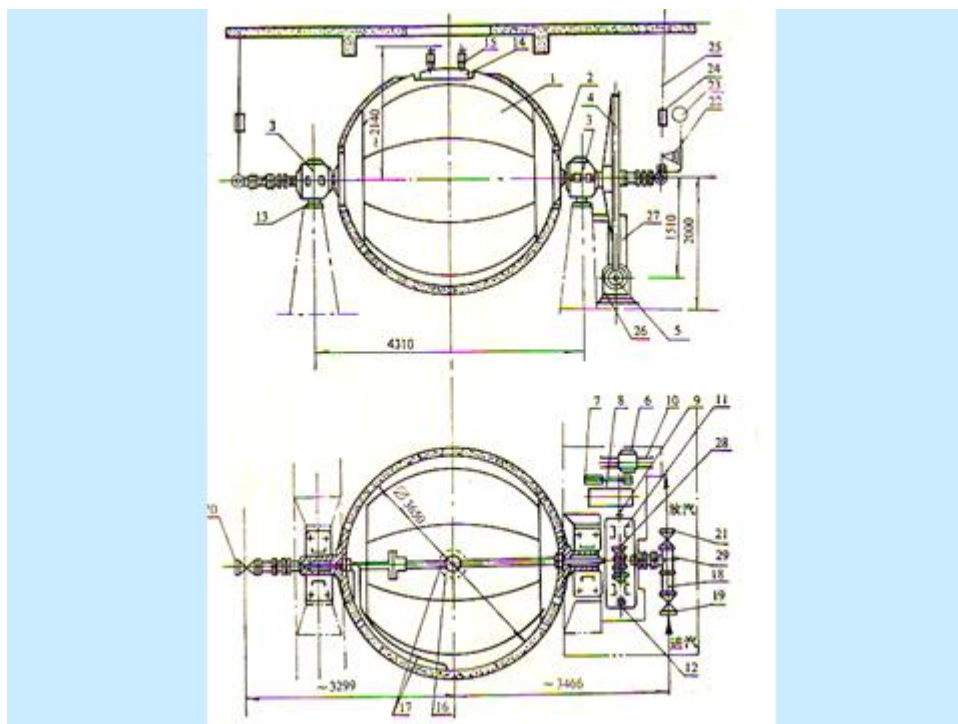


2. Paxta momig'ini pishirish qozoni apparati



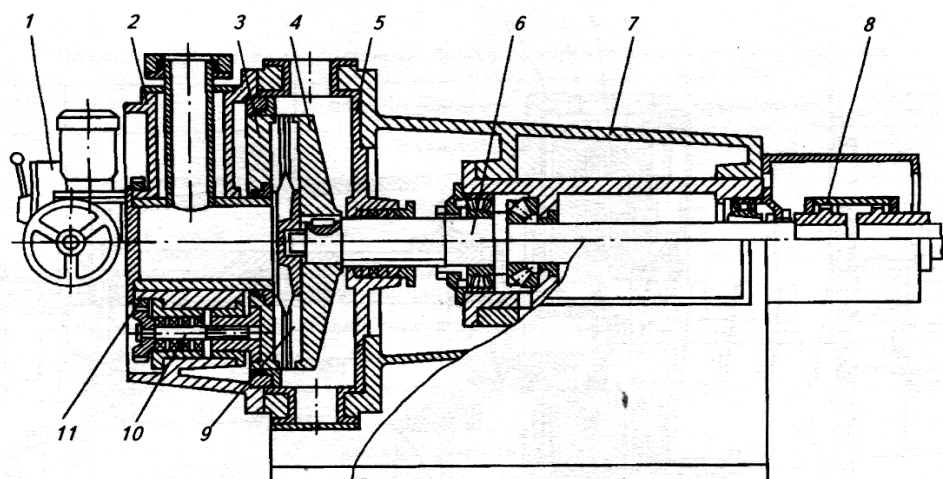
7-рasm. Paxta momig'ini pishirish qurilmasi sxemasi:

- 1 – pishirish qozoni; 2 – nasos; 3 – oqava suvni yig'uvchi havza;
 4 – zanglamaydigan po'latdan yasalgan perforlangan silindr;
 5 – "korj" shaklida presslangan paxta momig'i; 6 – perforlangan disk;
 7 – bug' radiatori.



8-рasm. Shar shaklidagi pishirish qog'oz sig'imi 25 m^3

3. Qog'oz massasining maydalash tegirmon apparatlari



9-rasm. MD turidagi bir diskali tegirmonning chismasi:

1 – qo'ndirish mexanizmi; 2 – kamera qopqog'i; 3 – stator; 4 – rotor diskasi; 5 – maydalovchi kamera; 6 – rotor; 7 – tayanch; 8 – mufta; 9 – maydalovchi garnitura; 10 – juft vintlar; 11 – silindrli uzatkich.

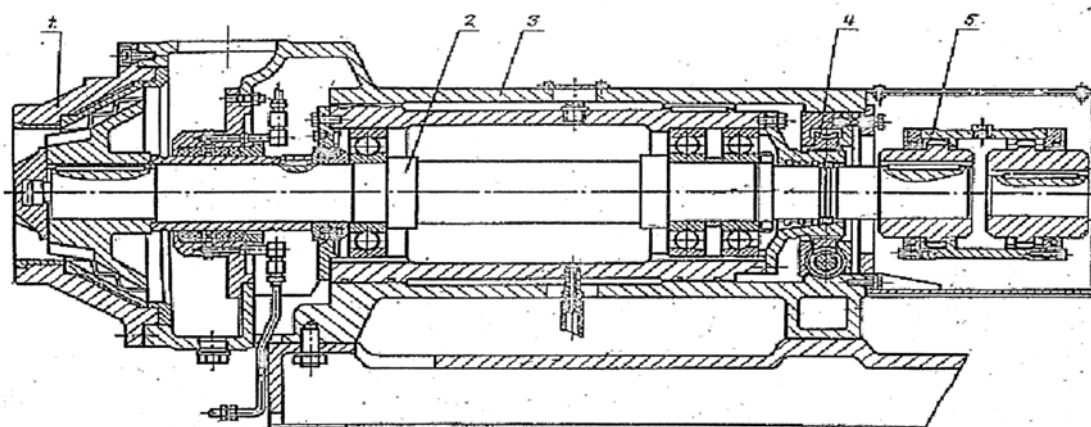
Uning texnik ko'rsatkichlari

1. Elektr dvigatel quvvati – 132 kVt
2. Diskaning diametri – 630 mm
3. Ishlab chiqarish quvvati xavo quruqligidagi selliyulozaga nisbatan – 50 m/sutka

Bulardan 1-bosqich uchun $\frac{160,2}{200} = 0,801 \approx 1$ dona.

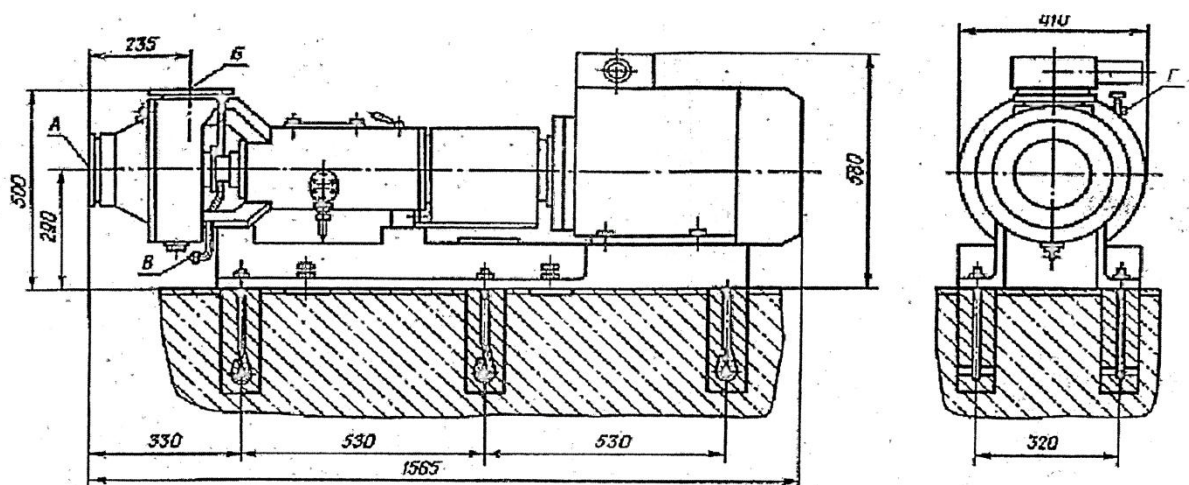
2-bosqich uchun $\frac{160,2}{200} = 0,534 \approx 1$ dona.

MP-00 markali pulsatsiyalovchi tegirmon



10-rasm. MP-00 markali pulsatsiyalovchi tegirmon

1 – stator; 2 – rotor; 3 – stanina; 4 – tirqishni o‘rnatish mexanizmi;
5 – tishli mufta.



11-rasm. MP-00 markali pulsatsiyalovchi tegirmonning chizmasi va gabarit o‘lchamlari

MP-00 markali pulsatsiyalovchi tegirmonning texnik tavsifi

3-jadval

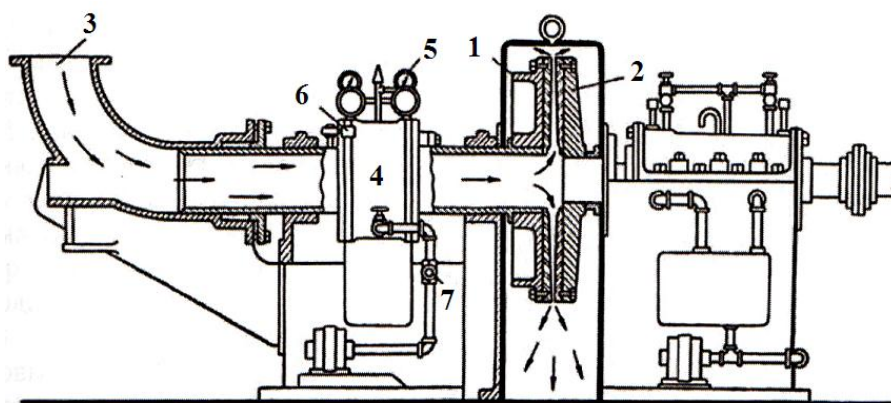
Nomi	MKL-03M
Ishlab chiqarish quvvati (quruq havodagi tolaga nisbatan), $t/sutka$	5-25
Tolalar massa ulushi, %	2-5
Rotor diametri, mm	190
Ishchi satxlar soni	3
Dvigatel:	
-turi	4A180S2U3
-quvvati, kVt	22
-aylanish chastotasi, min^{-1}	3000
-kuchlanishi, V	380
Gabarit o‘lchamlari, mm :	1565x410x580
Massasi (umumiy), kg	680

MP-00 markali pulsatsiyalovchi tegirmonning texnologik ko‘rsatkichlari

4 -jadval

Belgilar	Nomi	Soni	Shtutser diametri, D , mm	Bosimi, MPa
A	Massani berish	1	100	0,1
B	Massani chiqarish	1	80	0,4
V	Sovutilgan suvni berish	1	8	0,5
G	Suvni chiqarish	1	8	0,5

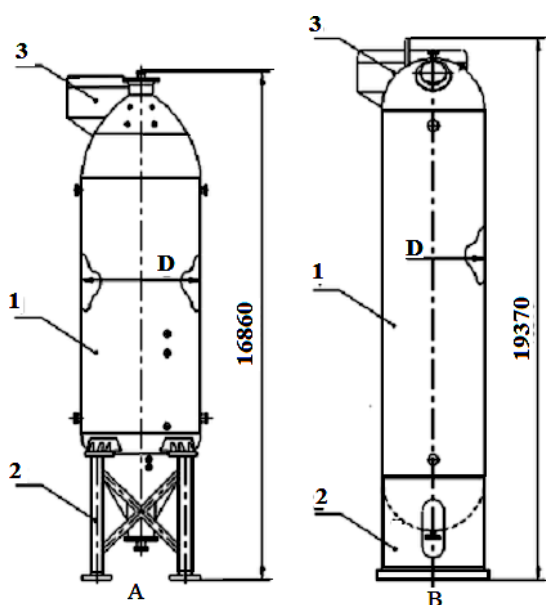
Sturlend diskli rafinyor (rafinyorlash)



12-rasm. Sturlend diskli rafinyor:

1 – turg'un disk; 2 – aylanadigan disk; 3 – massa kirish joyi; 4 – turg'un diskni bog'lash uchun gidravlik silindr.

4. Sellyuloza massasini saqlaydigan vertikal oraliq havzalar apparati Akkumullovchi baklar apparati



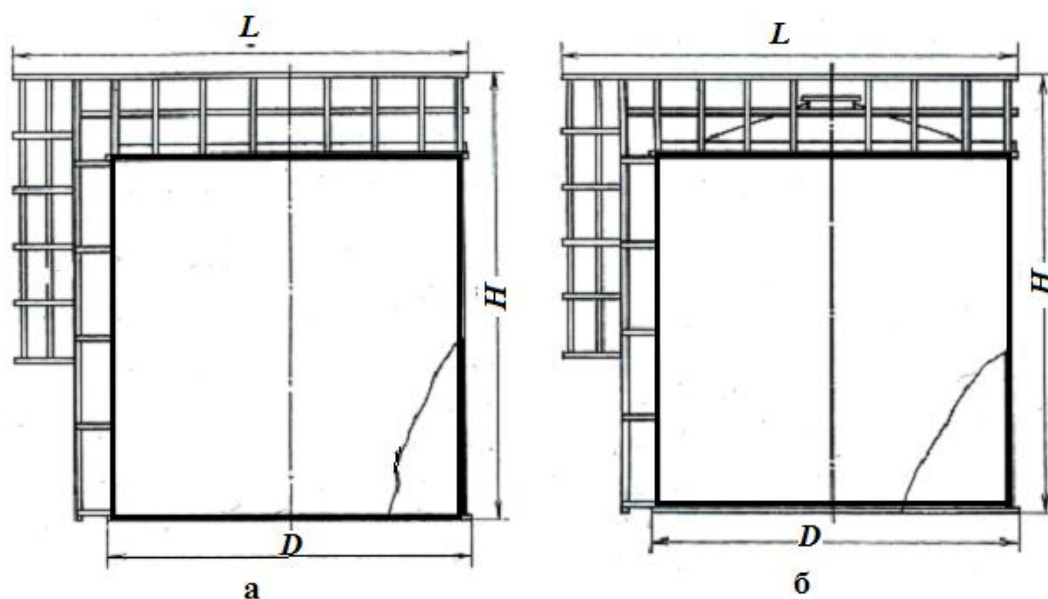
Akkumullovchi bak:
A – ramali tayanch; V – silindr
shaklidagi tayanch:
1 – korpus; 2 – tayanch; 3 – hizmat
maydonchasi.

5-jadval

Akkumullovchi bakning texnik tavsifi

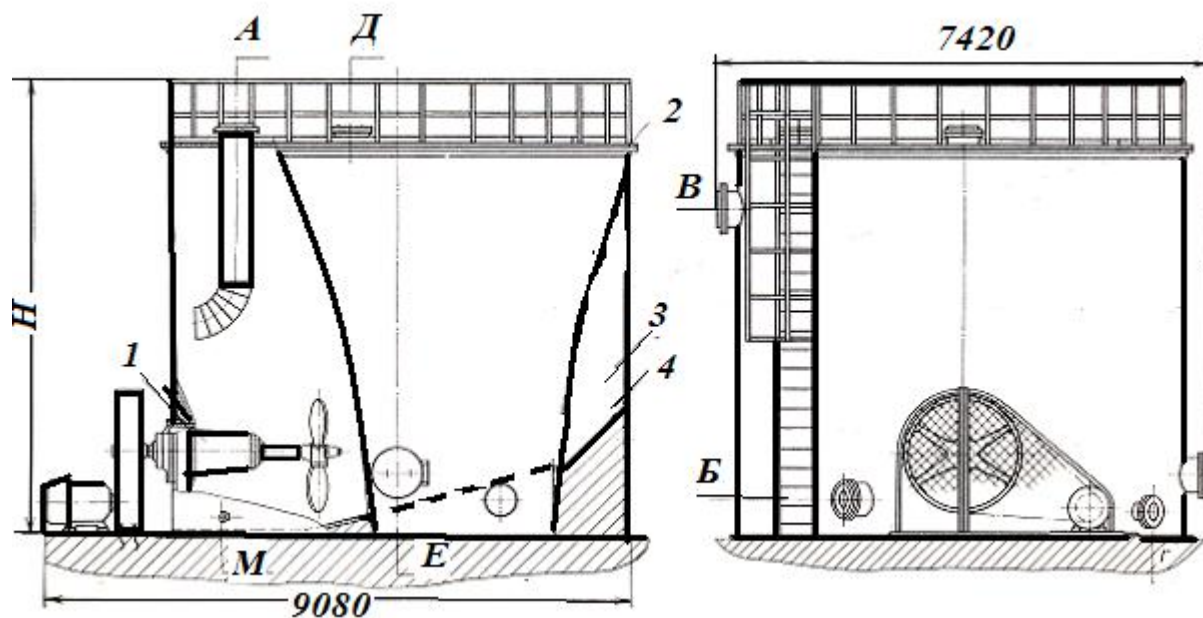
Ko'rsatkichlar	Markasi		
	202-69	202-67	202-68
Sig'imi, m ³	100	140	200
Korpus diametri D, mm	4000	4000	4000
Bak balandligi, mm	12100	16860	19370
Ishchi bosim, ko'pi bilan, MPa,	0,6	1,0	1,3
Muhit temperaturasi, kamida, °S	120	170	210
Massasi, kg	25100	50890	65300

202-51 markali baklar apparati
(TU 26-08-706-82)



13-rasm. 202-51 markali baklar apparati
Konus shaklidagi (a) va tekis (b) qopqoqli baklar

204-135 markali basseyn apparati
(TU 26-08-675-80)



14-rasm. 204-135 markali basseyn:
1- sirkulyasiyalovchi qurilma; 2-qopqoq; 3-korpus; 4-tubi

204-135 markali basseynning texnologik shtutserlari

Belgi	Nomi	Soni	O'tkazuvchi diametr, Du mm	SHartli bosim, MPa
A	Massani kirish joyi	1	500	0,3
B	Massani chiqish joyi	1	500	0,3
V	Toshish	1	500	0,3
G	To'kish	1	250	0,1
D	yuqoridan kirish	1	500	-
E	Pastdan kirish	1	500	-
J	Sath o'lchagich joyi	1	98	-

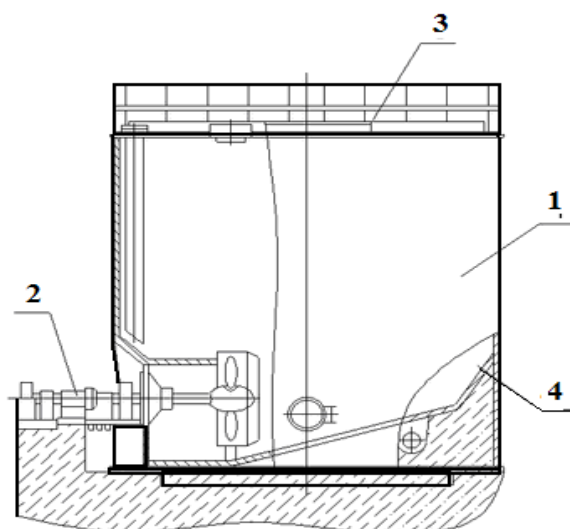
204-135 markali basseynning texnik tavsifi

Ko'rsatkich	Basseyn indeksi		
	204.135.00.000	204.135.00.000.01	204.135.00.000.02
Sig'imi, m ³	200	180	145
Quruq havodagi tola massasi, t	10,2	9,18	7,4
Ish muhiti	Sellyuloza, qog'oz massa, yog'och massa, makulatura massa, (rN kamida 5)		
Muhitdagi bosim	Gidrostatistik		
Muhitdagi temperatura, °S	Ko'pi bilan 30		
Massa konsentratsiyasi, %	Ko'pi bilan 4,5		
Sirkulyasiya qurilma: turi vint diametri, mm vintning aylanish chastotasi, min ⁻¹	SU-1800-75 1800 130		
Dvigatel: turi quvvati, kVt aylanish chastotasi, min ⁻¹	AO-315M-10 75 600		
Gabarit o'lchamlari, mm: uzunligi eni balandligi (N)	7060	9080 7420 6600	5600
Massasi, kg	21180	20240	18520

Gorizontal aralashtirgichli basseyin apparati



15-rasm. Gorizontal aralashtirgichli basseyinning umumiy ko'rinishi



16-rasm. Gorizontal aralashtirgichli basseyin:
1 – korpus; 2 – aralashtiruvchi qurilma;
3 – qopqoq; 4 – tagi.

8-jadval

Gorizontal aralashtirgichli basseyinning texnik tavsifi

Parametrlari	Markasi							
	-	-	204-135A	204-135A-01	204-135A-02	204-135A-10	204-135A-11	204-135A-12
Sig'imi, m ³	50	100	200	180	145	200	180	145
Basseyin diametri D, mm	4000	5000	7000					
Basseyndagi tolalarning massasi, ko'pi bilan, t	2,9	5,8	8,04	7,245	5,83	11,58	10,42	8,39
Tolalar konsentratsiyasi, %	5	5	3,5			5		
Quvvati, kVt	24	30	44			72		
Gabarit o'lchamlari, mm:								
- uzunligi, L	6000	7500	8890			8890		
- eni, B	4500	5500	7500			7500		
- balandligi, N	5100	6100	7077			6617		
Massasi, kg	8200	12600	18330	17670	16210	19190	18530	17070

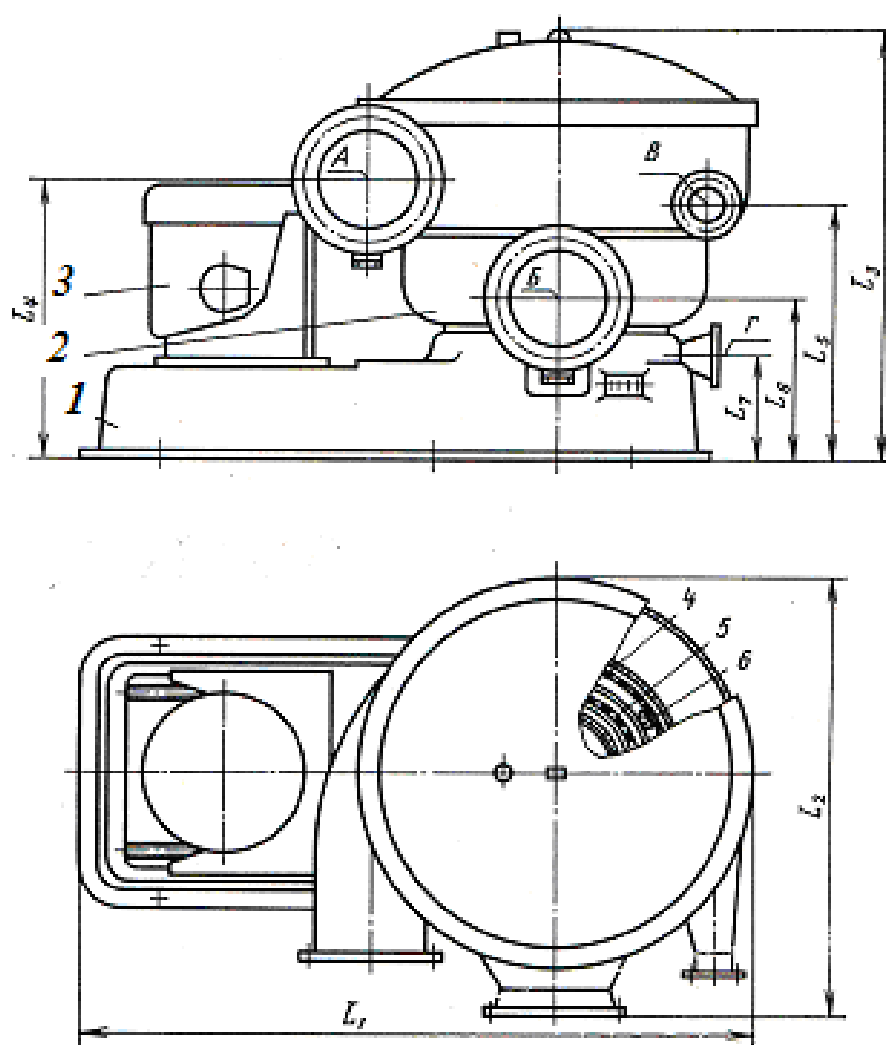
5. Sellyuloza massasini tozalash apparatlari

UZ-09-01, UZ-12, UZ-13 markali yopiq tugun tutgichlar
(TU 26-08-614-77, TU 26-08-647, TU 26-08-79 va TU 26-08-647-79)

9-jadval

Uz-09-01, UZ-12, UZ-13 markali yopik tugun tutgichlarning gabarit o'lchamlari

Tuguntutgich markasi	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇
UZ-09-01	1860	1060	1440	850	790	535	325
UZ-12	2200	1325	1740	965	880	530	530
UZ-13	2600	1780	2050	1200	1135	685	540



17-rasm. Uz-09-01, UZ-12, UZ-13 markali yopik tugun tutgichlar:

1 – plita; 2 – korpus; 3 – dvigatel; 4 – tashqi to‘r; 5 – ichki to‘r;
6 – parrak.

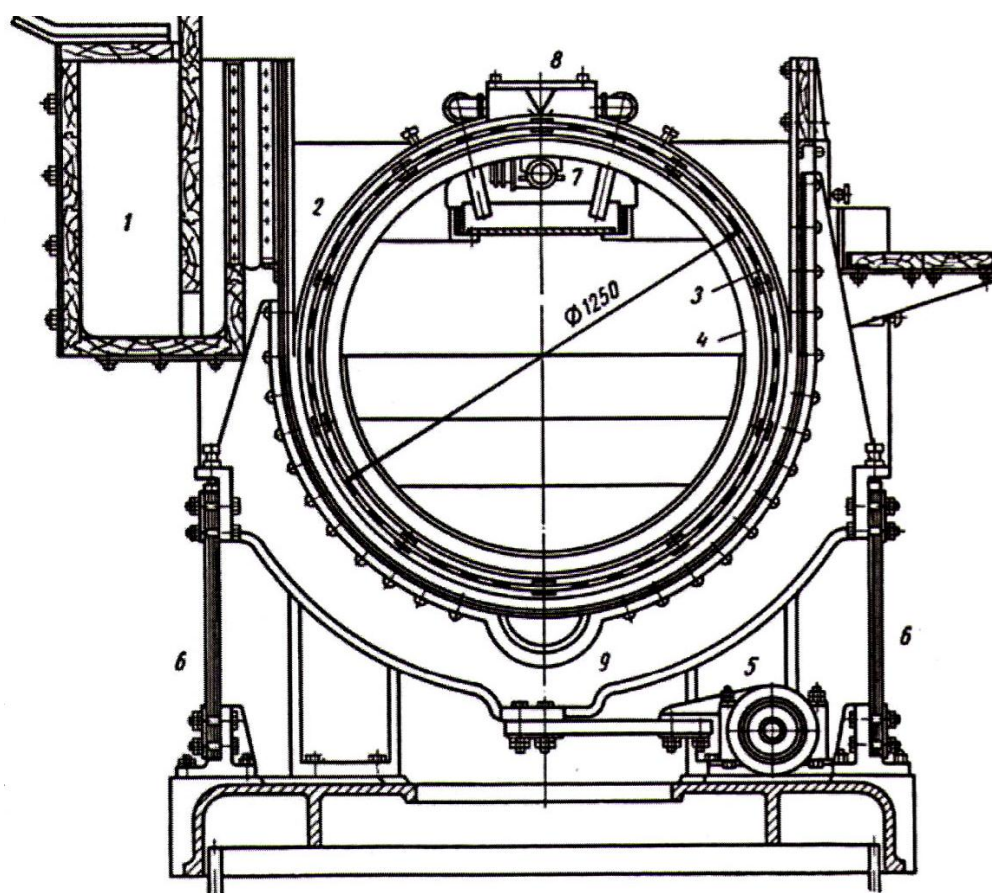
**UZ-09-01, UZ-12, UZ-13 markali yopik tugun tutgichlarning texnologik
shtutserlari**

Belgilar	Nomi	Soni	SHartli o'tkazgich, D _u , mm			Bosimi, MPa
			UZ-09-01	UZ-12	UZ-13	
A	Suspenziyani berish joyi	1	200	250	350	0,1-0,5
B	Suspenziyani chiqarish joyi	1	200	250	350	0,08-0,45
V	Og'ir chiqindilarni chiqarish joyi	1	80	80	100	-
G	Engil chiqindilarni chiqarish joyi	1	80	80	100	0,03

**UZ-09-01, UZ-12, UZ-13 markali yopik tugun tutgichlarning texnik
tavsifi**

Nomi	UZ-09-01	UZ-12	UZ-13
Ishlab chiqarish quvvati (havo quruq havodagi tolaga nisbatan), t/sutkada	60	110	200
To'ring umumiy maydoni, m ²	0,9	1,6	2,92
To'r teshiklarining diametri, mm	1,4-3		
Tolalar massa ulushi, %	1-13		
Saralash vannadagi chiqindi-larning konsentratsiyasi, %	3-5		
Rotordagi: parraklar soni aylanish chastotasi, min ⁻¹	4 478	4 424	4 310
Dvigatel: turi quvvati, kVt aylanish chastotasi, min ⁻¹	4A160S4U3 11 975	4A200L6U3 30 980	4A225M6U3 37 980
Gabarit o'lchamlari, mm:	1860x1060x 1440	2200x1325x1740	2600x1780 x2050
Massasi (umumiy), kg	1150	2350	3090

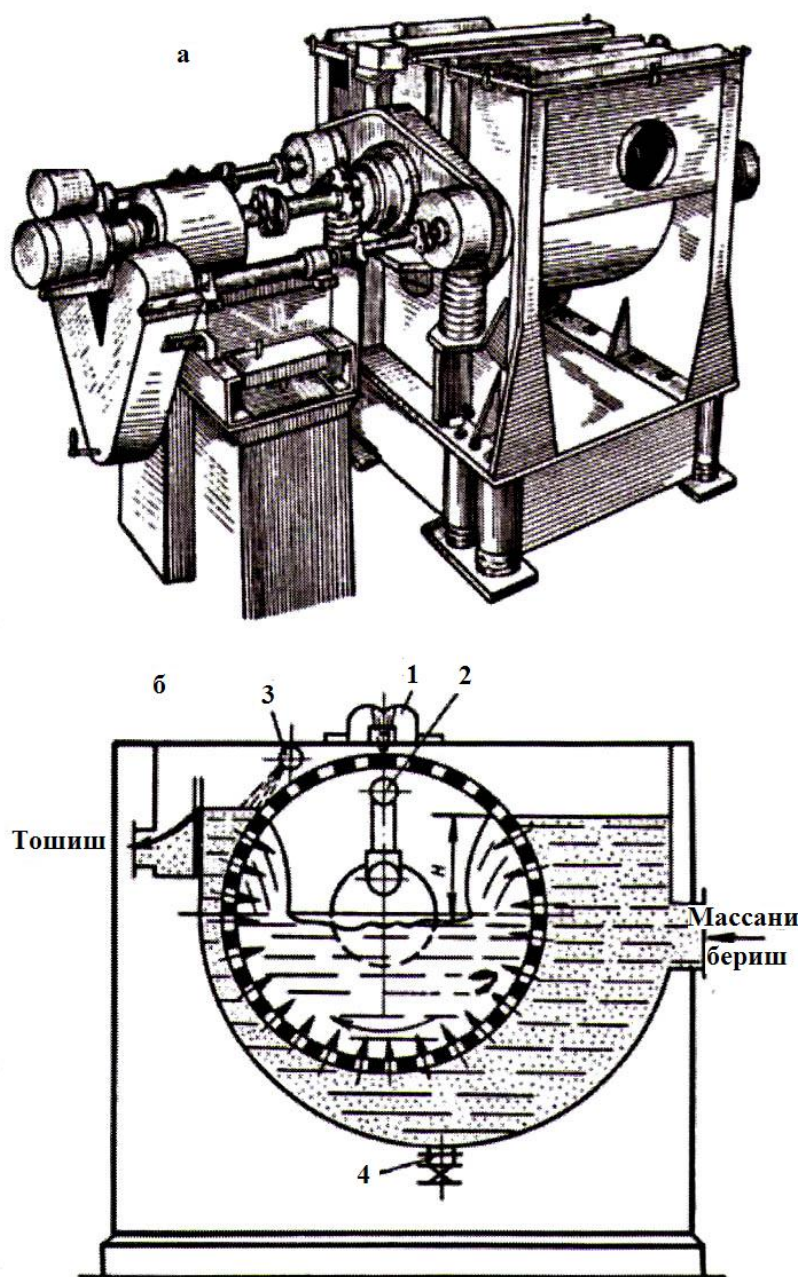
UVV markali tebranuvchi vannali tugun tutgich apparati



18-rasm. Tebranuvchi vannali tugun tutgich:

1 – massani vannaga beruvchi nov; 2 – vanna; 3 – baraban; 4 – bo‘yin; 5 – val;
6 – vannaning prujinali tayanchi; 7 – suv purkagich; 8 – tugunlarni chiqargich
novi; 9 – massani ikkinchi saralashga beruvchi uzatma.

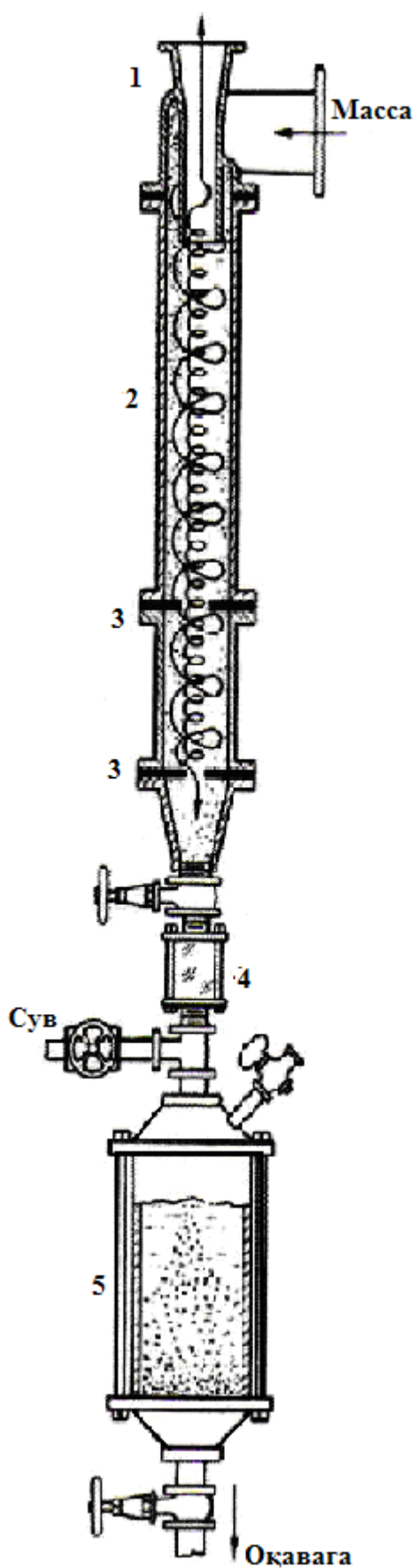
Yuqori chastotali tebratkichli tugun tutgich apparati



19-rasm. Lingren-Iensen tugun tutgichi:

*a – umumiy ko‘rinishi; b – qirqim sxemasi; 1 – chiqarish novi;
2 – purkagich; 3 – qo‘shimcha purkagich; 4 – ortiqcha massani chiqargich.*

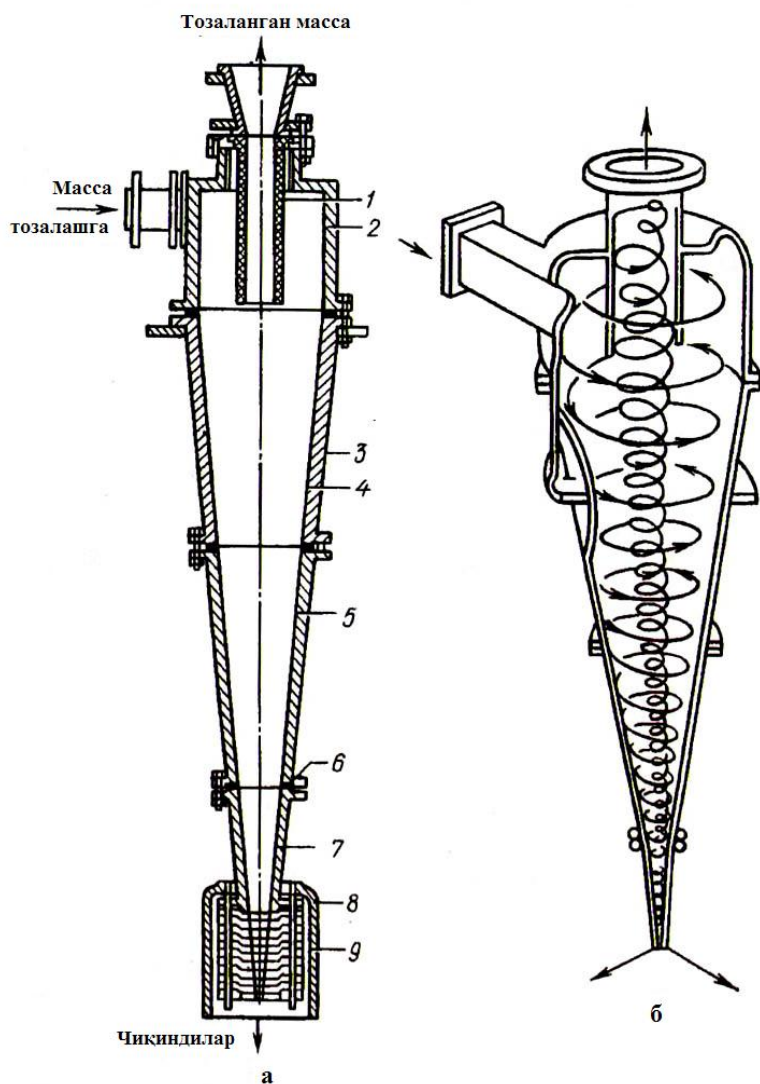
6. Uyurmali tozalagich apparati



20-rasm. Uyurmali tozalagich:

- 1 – taqsimlash apparati;
- 2 – quvur;
- 3 – diafragma;
- 4 – kuzatish oynasi;
- 5 – chiqindi chiqargich.

Markaziy kliner (Sentrikliner) apparati

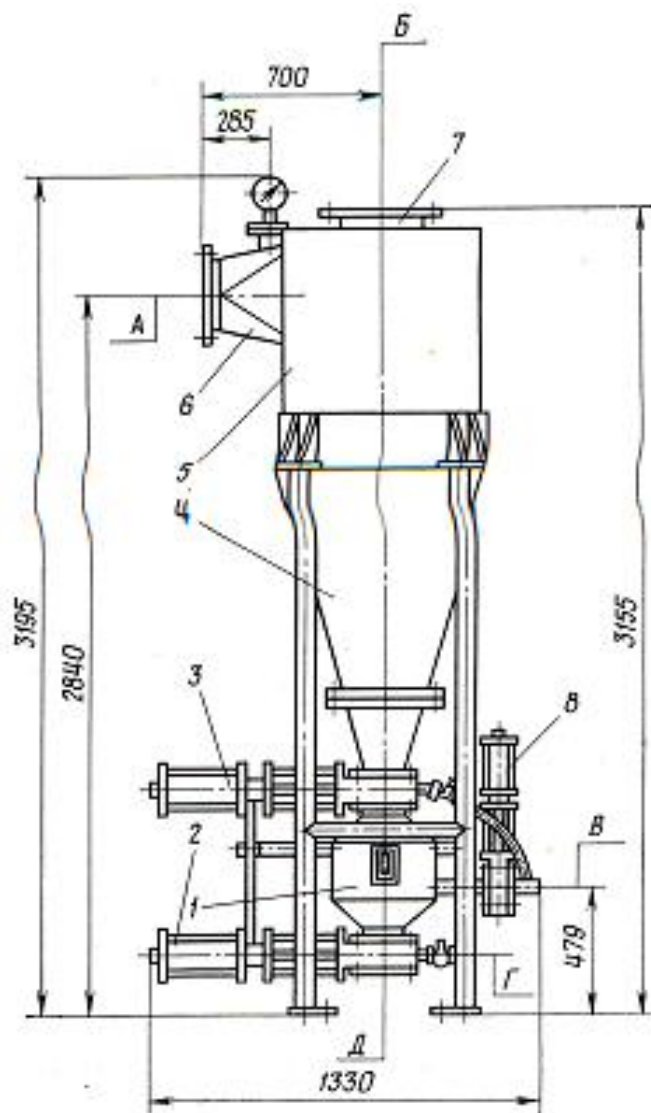


21-rasm.

Markaziykliner
(Sentrikliner)
(a) va unda massaning
harakatlanish sxemasi
(b):

- 1 – tozalangan massa
chiqadigan quvur;
- 2 – qopqoq;
- 3 – yuqori konus;
- 4 – sirt qoplamasi;
- 5 – o‘rta konus;
- 6 – tiqin;
- 7 – pastki konus;
- 8 – g‘ilof to‘sig‘i;
- 9 – g‘ilof.

**OK-08 markali uyurmali tozalagich
(TU 26-08-605-77)**



22-rasm. OK-08 markali uyurmali tozalagich:
1 – ifloslarni to‘plagich; 2,3 va 8 – zadviijkalar;
4 – konus; 5 – korpus;
6 – massaning kirish patrubkasi;
7 – massaning chiqish patrubkasi.

12-jadval

OK-08 markali uyurmali tozalagichning texnik tavsifi

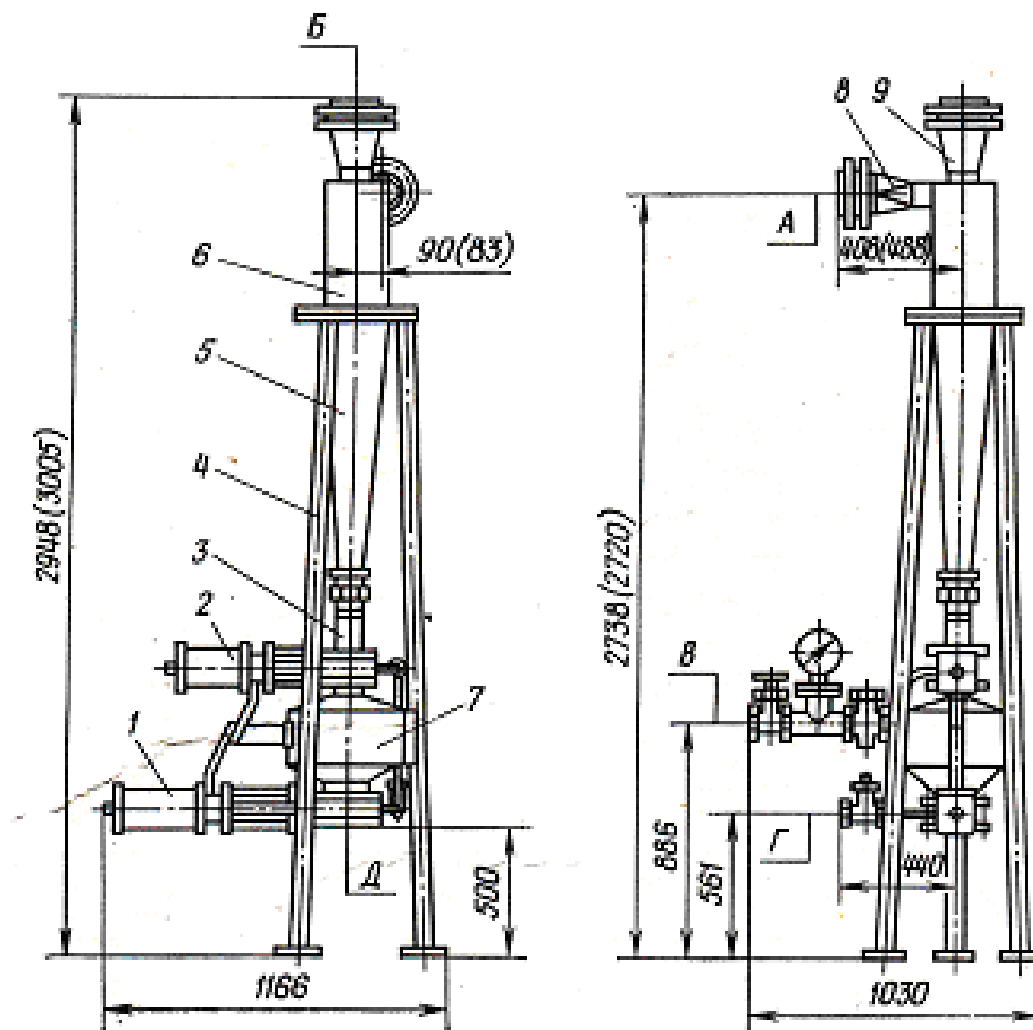
Massa o‘tkazish imkoniyati, l/min	10 000
Ishlab chiqarish quvvati (quruq havodagi tolaga nisbatan), t/sutka	
Massaning dastlabki konsentratsiyasi, g/l	32,7-163,3
Tozalagich diametri, mm	2-10
Bosim, MPa	500
Gabarit o‘lchamlari, mm	0,06-0,1
Massasi (el.dvigatel bilan), kg	1330x925x3195
	805

OK-08 markali uyurmali tozalagichning texnologik shtutserlari

Belgilar	Nomi	Soni	SHartli o'tkazgich, D _u , mm	Bosimi, MPa
<i>A</i>	Massani tozalagichga berish	1	250	0,14
<i>B</i>	Tozalangan massaning chiqishi	1	300	0,02
<i>V</i>	Aylanma suv berish	1	50	0,4
<i>G</i>	Toza suv berish	1	15	0,4
<i>D</i>	CHiqindi chiqishi	1	150	-

**OM-02-1 va OM-02M markali uyurmali tozalagichlar apparati
(TU 26-08-709-82E)****OM-02-1 va OM-02M markali uyurmali tozalagichlarning
texnologik shtutserlari**

Belgilar	Nomi	Soni	SHartli o'tkazgich, D _u , mm		Bosimi, MPa
			OM-02-1	OM-02M	
<i>A</i>	Massani tozalagichga berish joyi	1	100	150	0,24
<i>B</i>	Tozalangan massaning chiqish joyi	1	100	150	0,08
<i>V</i>	Aylanma suv berish	1	50	05	0,4
<i>G</i>	Toza suv berish joyi	1	15	15	0,4
<i>D</i>	CHiqindning chiqish joyi	1	150	150	-



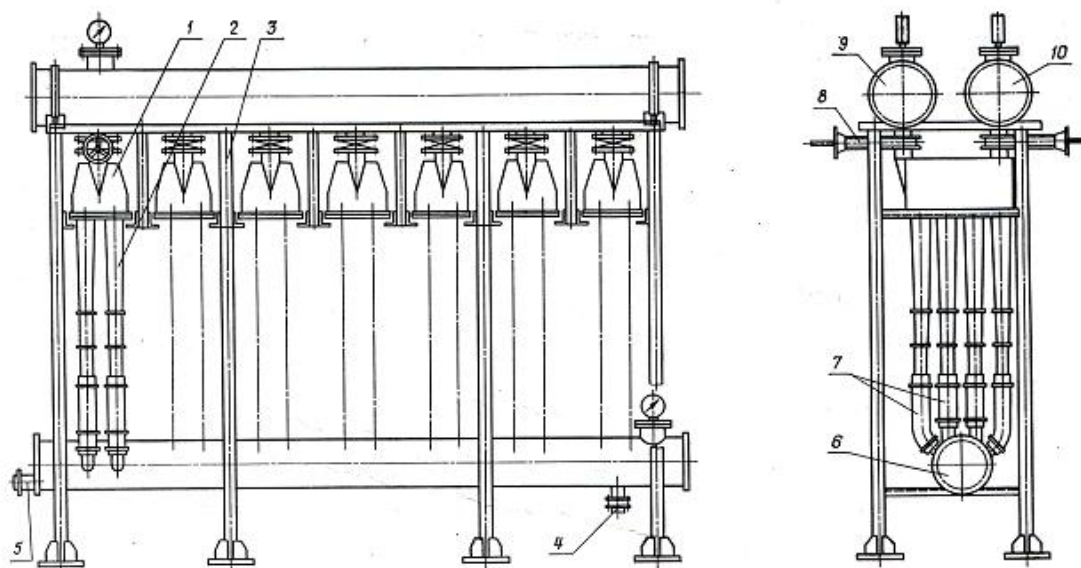
23-rasm. OM-02-1 va OM-02M markali uyurmali tozalagichlar:
 1 va 2 – pnevmouzatmali zadviykalar; 3 – stakan; 4 – rama; 5 – konus;
 6 – asosiy qism; 7 – iflos to‘plagich; 8 – kirish patubkasi; 9 – chiqish
 patubkasi.

15-jadval

OM-02-1 va OM-02M markali uyurmali tozalagichlarning texnik tavsifi

Nomi	OM-02-1	OM-02M
Massa o‘tkazish imkoniyati, l/min	1000	1900
Tozalangan massaning massa konsentratsiyasi, g/l	50 dan ko‘p emas	
Ishlab chiqarish quvvati (quruq havodagi tolalarga nisbatan), t/sutka	81,8	155,3
Tozalik samaradorligi, %	80	
Tozalagich diametri, mm	215	
Bosimi, MPa ko‘pi bilan	0,16	
Gabarit o‘lchamlari, mm	1166x1030x2948	1166x1030x3005
Massasi, kg	764	775

**UVK-40-01, UVK-90-01, UVK-180-01, UVK-300-01 markali
uyurmali tozalagich qurilmalari apparati
(GOST 26-08-310-81)**



24-rasm. UVK-40-01, UVK-90-01, UVK-180-01, UVK-300-01 markali
uyurmali tozalagich seksiyasining umumiy ko‘rinishi:

1 - tozalagich bloki; 2 – uyurmali tozalagich; 3 – rama; 4 – iflos moddalar
chiqadigan patrubka; 5 – tozalovchi suv beruvchi patrubka; 6 – chiqindi
kollektori; 7 – rezinali qo‘lqop; 8 – zadvijka; 9 – bosim kollektori;
10 – yig‘uvchi kollektori.

16-jadval

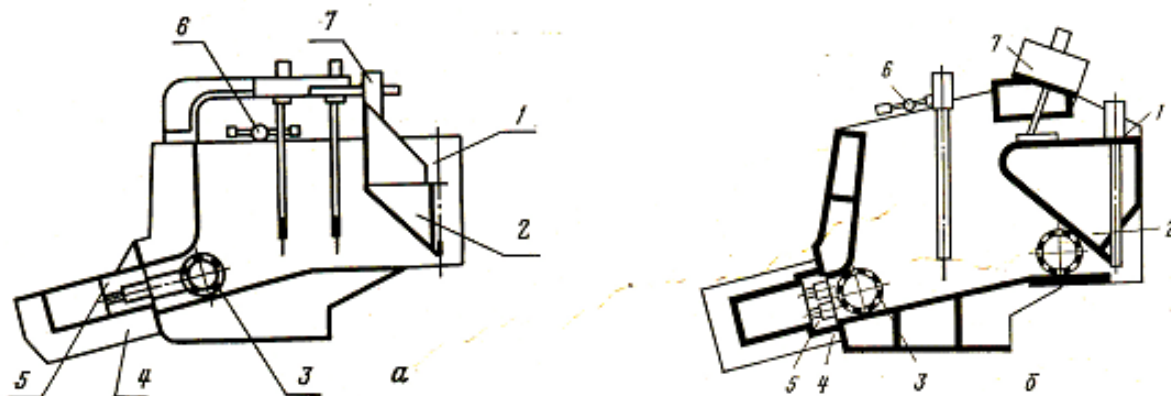
**UVK-40-01, UVK-90-01, UVK-180-01, UVK-300-01 markali uyurmali
tozalagichlarning texnik tavsifi**

Ko‘rsatkich	Qurilma markasi			
	UVK-40-01	UVK-90-01	UVK-180-01	UVK-300-01
Ishlab chiqarish quvvati (quruq tolalarga nisbatan massa konsentratsiyasi 5g/l bo‘lganda), t/sutka	40	90	180	300
Tozalash samaradorligi, %:				
0,002 mm li qumlardan	70			
0,5-1 mm li qobiqdan	60			
Tozalagichning utkazuvchanligi, l/min	70			
Tozalagich diametri, mm	125			
Tozalagichlar soni:				
I bosqich	56	112	224	392
II bosqich	12	32	56	55
III bosqich	8	2	16	40
I bosqichdagi seksiyalar soni	1	2	4	7
Gabarit o‘lchamlari, mm	4617x3740	6475x	11585x	16640x

UVK-90-04 markali uyurmali tozalagichlarning texnologik shtutserlari

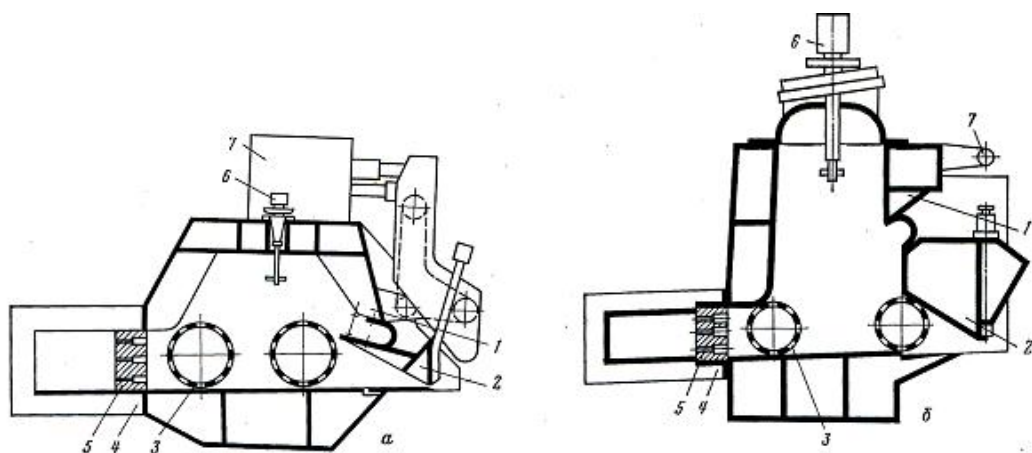
Belgi	Nomi	Soni	SHartli diametr, Du, mm	Bosim, MPa
A	Massani seksiyaning I bosqichiga berish	1	300	0,38
B	Tozalangan massaning seksiyaning I bosqichidan chiqish joyi	1	300	0,02-0,03
V	CHiqindining seksiyaning I bosqichidan chiqish joyi	1	150	0,03-0,06
G	Massani seksiyaning II bosqichiga berish joyi	1	200	0,38
D	Tozalangan massani seksiyaning II bosqichidan chiqish joyi	1	200	0,02-0,03
E	Chiqindini seksiyaning II bosqichidan chiqish joyi	1	80	0,03-0,06
J	Massani seksiyaning III bosqichiga berish joyi	1	100	0,38
Z	Tozalangan massani seksiyaning III bosqichidan chiqish joyi	1	100	0,02-0,03
I	Chiqindini seksiyaning III bosqichidan chiqish joyi	1	50	0,03-0,06
K	Tozalovchi suvni berish joyi	1	80	0,3-0,35
L	Tozalovchi suvni berish joyi	2	50	0,3-0,35
M	Ifloslarni chiqarish joyi	1	50	-
N	Vakuum yo‘lagidan ho‘l aralashmalarni chiqarish joyi	1	100	-
P	Tolani ushalb qoluvchi qurilmaga suyultirish suvini berish joyi	1	50	0,3-0,35

7.Bosim yashik apparati



26-rasm. Ochiq turdagi bosim qutilari:

1 – korpus; 2 – suriladigan devor; 3 – perforlangan val; 4 – kollektorli kamera;
 5 – perforlangan plita; 6 – ko‘pik so‘ndirgich; 7 – old devorni siljituvchi mexanizm: a – YANO-120; b – YANO-180 markali qutilar.



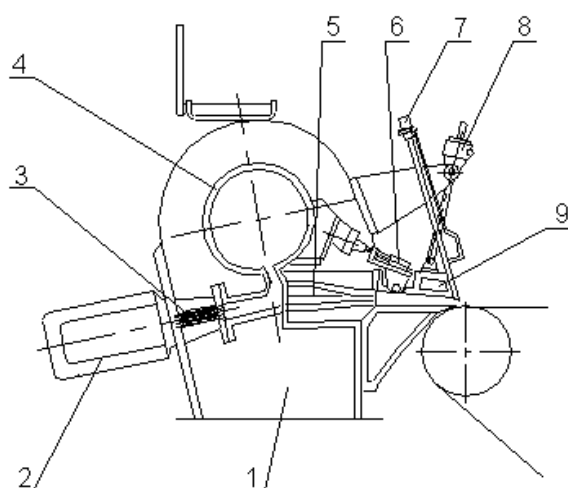
27-rasm. Yopiq turdagi bosim qutilari:

1 – korpus; 2 – suriladigan devor; 3 – perforlangan val; 4 – kolektorli kamera; 5 – perforlangan plita; 6 – ko‘pik so‘ndirgich; 7 – old devorni siljituvchi mexanizm: a – YANZ-3,8; b – YANZ-20 markali qutilar.

19-jadval

Ochiq va yopiq markali bosim qutilarining texnik tavsifi

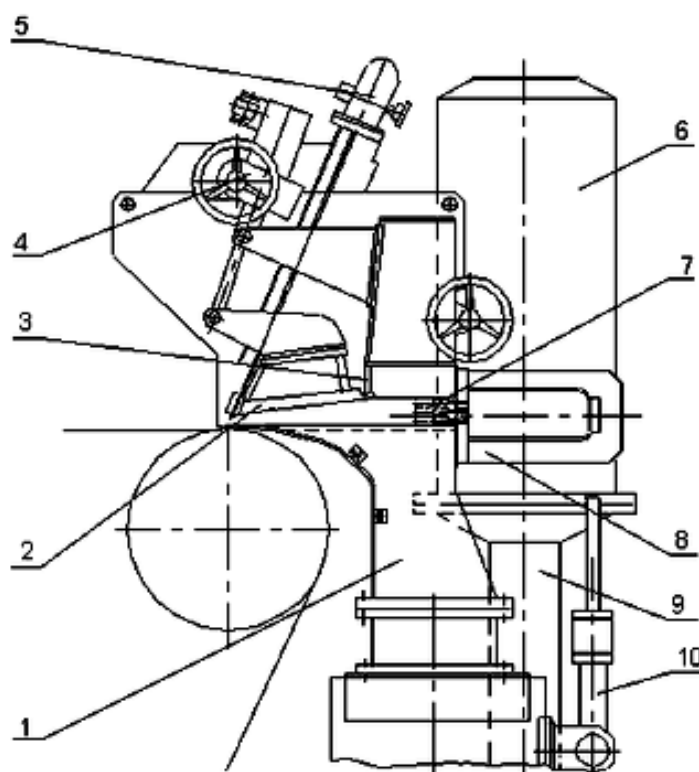
Quti turi	Qirqim eni, mm	Massa chiqaruvchi tirqishning maksimal eni, mm	Perforlangan valning diametri, mm	Maksimal tezlik, m/min	Massani maksimal solishtirma sarfi, m ³ /min	Massa, t
Ochiq turdagi bosim yashigi						
YANO-120	1680, 2100, 2520	2100	120	120	1,1	1,75
		2950				2,45
YANO-180		2100	160	180	2,6	3,22
		2950				3,85
YANO-250	2520, 4200	2950	160	250	3	6,6
Yopiq turdagi bosim yashigi						
YANZ-3,1	2520, 4200	2100	170	600	3,1	6,54
		4800				10
YANZ-3,8		4800	210		3,8	10
YANZ-4,5			250		4,5	10
YANZ-5,4	4200, 6300, 6720	6850	300	600	5,4	16,5
YANZ-6,5			300		6,5	16,5
YANZ-7,8			430		7,8	16,5
YANZ-9,4			520		9,4	21
YANZ-20			630		20	44



28-rasm. Tekislovchi kamerali gidrodinamik bosim qutisi:

- 1 – korpus; 2 – kollektor;
 3 – massa kirishidagi turbulizator;
 4 – tekislovchi kamera;
 5 – massa chiqishidagi turbulizator;
 6 – gorizontal xarakatlantiruvchi mexanizm;
 7 – boshqaruvchi mexanizm;
 8 – vertikal xarakatlantiruvchi mexanizm.

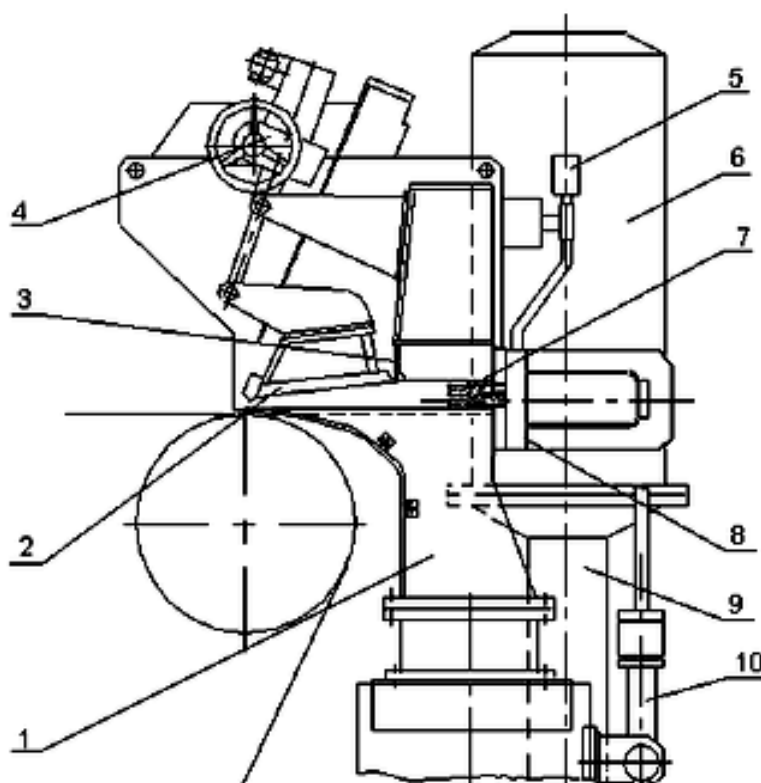
To‘lqin so‘ndirgichli gidrodinamik bosim qutisi



29-rasm. To‘lqin so‘ndirgichli gidrodinamik bosim qutisi:

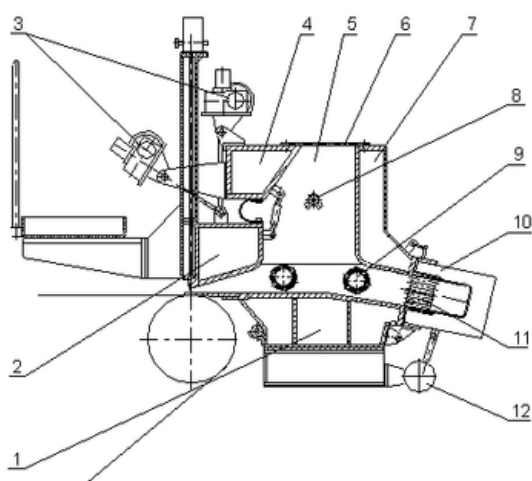
- 1 – korpus; 2 – qism; 3 – gorizontal harakatlanuvchi mexanizm; 4 – vertikal harakatlanuvchi mexanizm; 5 – yuqori qismidagi aniq boshqaruvchi mexanizm;
 6 – to‘lqin so‘ndirgich; 7 – turbulizator; 8 – kollektor; 9 – massa uzatuvchi quvur; 10 – kollektorni siljituvchi mexanizm.

Massa konsentratsiyasini qirqim bo'ylab boshqaruvchi gidrodinamik bosim qutisi



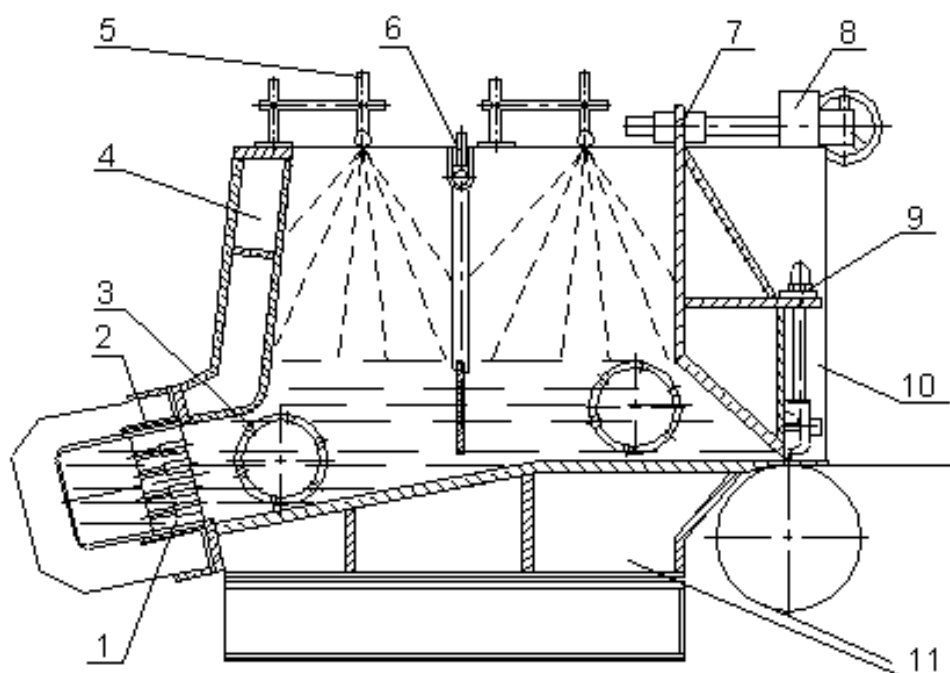
30-rasm. Massa konsentratsiyasini qirqim bo'ylab boshqaruvchi gidrodinamik bosim qutisi:
 1 – korpus; 2 – yuqori qism;
 3 – gorizontal siljish mexanizmi;
 4 – vertikal siljish mexanizmi;
 5 – massa konsentratsiyani to'liq boshqarish;
 6 – to'liq so'ndirgich;
 7 – turbulizator;
 8 – kollektor;
 9 – massa oqizadigan quvur;
 10 – kollektorni siljituvchi mexanizm.

Yopiq holdagi perforlangan valli bosim qutisi



31-rasm. Yopiq holdagi perforlangan valli bosim qutisi:
 1 – korpus; 2 – old devori; 3 – old devorni siljituvchi mexanizm;
 4 – balka; 5 – yon devori; 6 – qopqoq;
 7 – orqa devori; 8 – ko'pik so'ndirgich;
 9 – perforlangan val;
 10 – kollektor; 11 – teshikli plita;
 12 – kollektorni siljituvchi mexanizm.

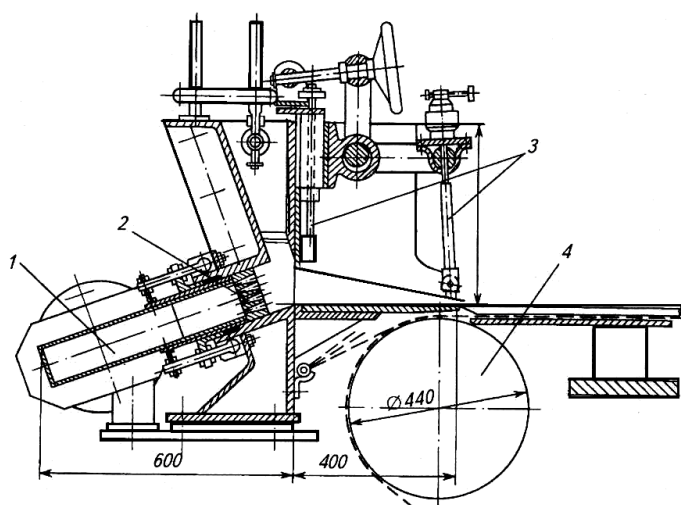
Ochiq holdagi perforlangan valli bosim qutisi



32-rasm. Ochiq holdagi perforlangan valli bosim qutisi:

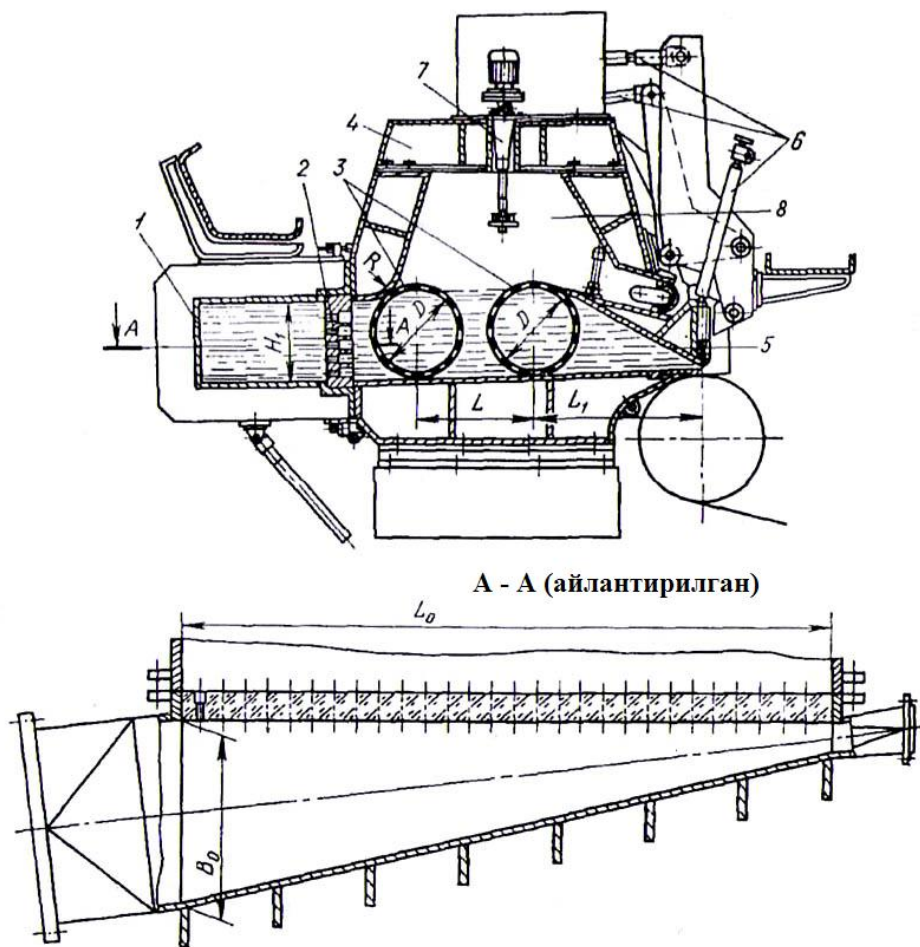
1 – kollektor; 2 – perforlangan plita; 3 - perforlangan val, 4 – orqa devor;
5 – ko‘pik so‘ndirgich; 6 – to‘siq; 7 – old devor; 8 – old devorni siljituvchi mexanizm; 9 – aniq boshqaruvchi mexanizm; 10 – yon devor;
11 – lineyka devori.

Yopiq turidagi bosim qutilari



33-rasm. Oqimni boshqarib boruvchi bosim qutisi:

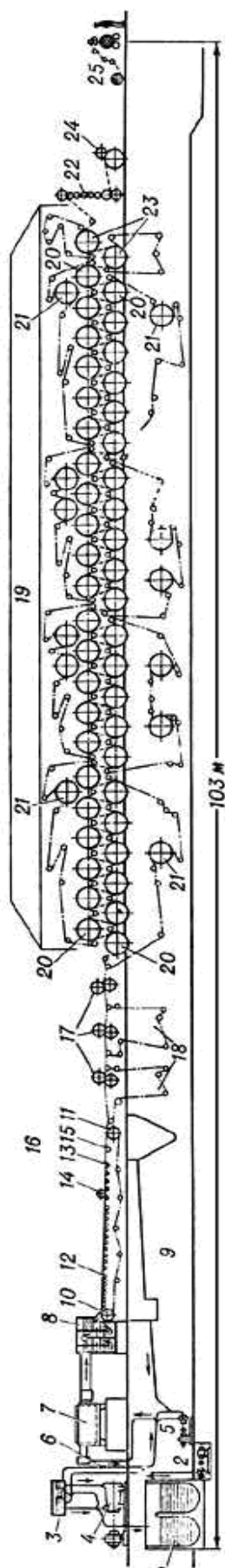
1 – oqimni bo‘lib beruvchi;
2 – teshikli vallar;
3 – massa chiqadigan tirqishni boshqaruvchi;
4 – asosiy val



34-rasm. Yopiq turdagi bosim qutisi:

1 – kollektor - oqim boshqargich; 2 – perforlangan plita; 3 – perforlangan val;
 4 – quti korpusi; 5 – oldingi devor; 6 – tirqishni boshqaruvchi mexanizm; 7 –
 ko‘pik so‘ndirgich; 8 – havo yastiqcha.

8. Qog'oz quyish mashinasining to'r stoli apparati



35-rasm. Tekis to'rli qog'oz quyish mashinasining chizmasi:

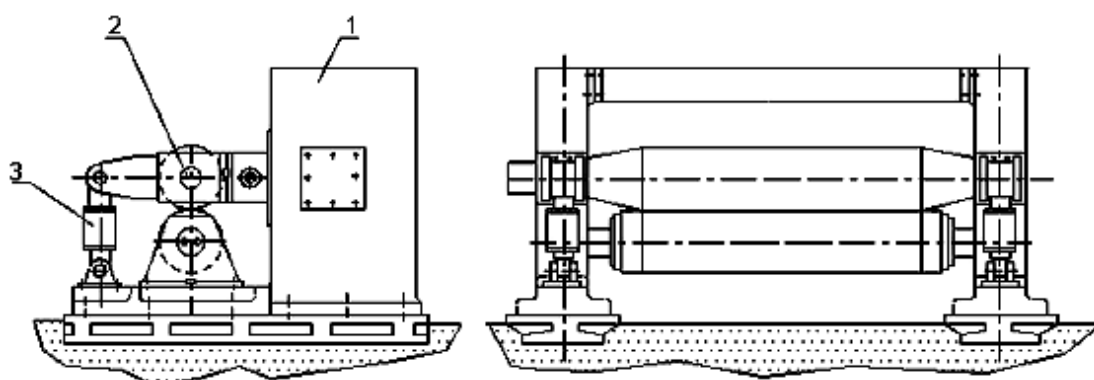
- 1 – mashina basseyni; 2 – nasos; 3 – bosim birxilda bo'lishini ta'minlovchi bak; 4 – konus shaklidagi tegirmon; 5 – aralashtiruvchi nasos; 6 – zadviykalar; 7 – tozalovchi apparatlar; 8 – bosim idishi; 9 – to'r qism; 10 – oldingi val; 11 – gauch val; 12 – registrlil vallar; 13 – so'ruvchi qutilar; 14 – tenglashtiruvchi val; 15 – to'g'ri val; 16 – presslovchi qism; 17 – valslovchi presslar; 18 – mo'ynali sukno; 19 – quritish qismi; 20, 21 – quritish silindrlari; 22 – kalandr; 23 – sovituvchi silindr; 24 – nakat; 25 – uzinasiga kesish stanogi.

9. Presslovchi kalandrlar apparati

20-jadval

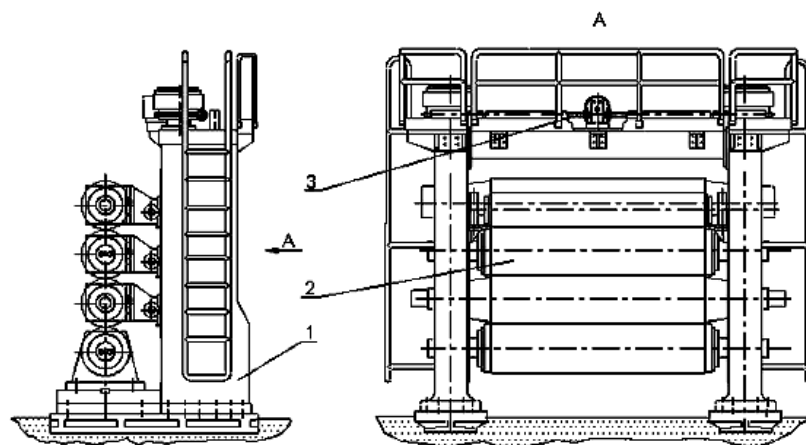
Kalandrlarning texnik tavsifi

Chetlari qirgilgan polotno eni, <i>mm</i>	Vallar soni	Chiziqli bosim, <i>kN/m</i>	Gabarit oʻlchamlari, <i>mm</i>			Massasi, <i>t</i>	
			uzunligi	eni	boʻyi		
1680	2	65	4200	5900	5700	16	
	4					22	
	6					26	
2100	2	52		6400		5700	20
	4						26
	6						30
2520	2	39	4400	5100	6400	25	
	4					34	
	6					40	
	2					27	
	4					32	
	6					38	
	4					83	
	6					95	
	2					32	
	4					73	
	6					85	



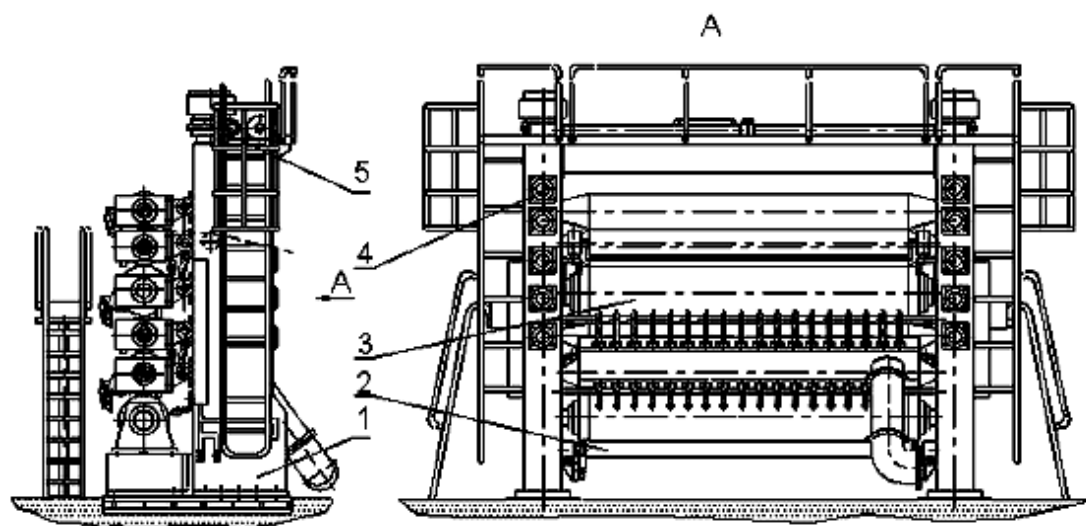
36-rasm. Ikki valli kalandr:

1 – stanina; 2 – val (korpus va podshipnigi bilan); 3 – vallarni siqish va ko'tarish mexanizmi



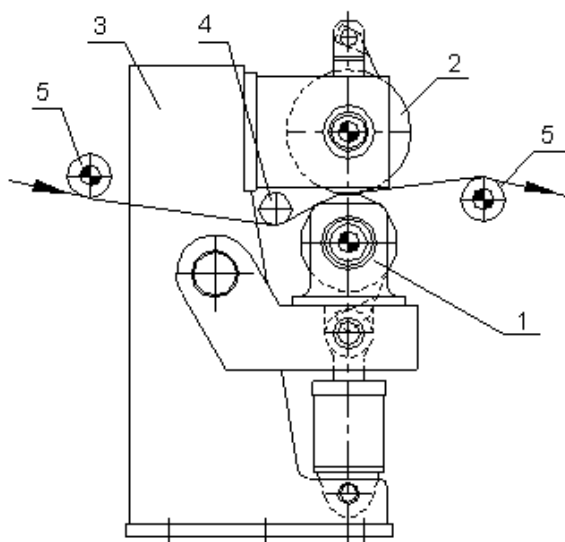
37-rasm. To‘rt valli kalandr:

1 – stanina; 2 – val (korpus va podshipnigi bilan); 3 – vallarni siqish va ko‘tarish mexanizmi



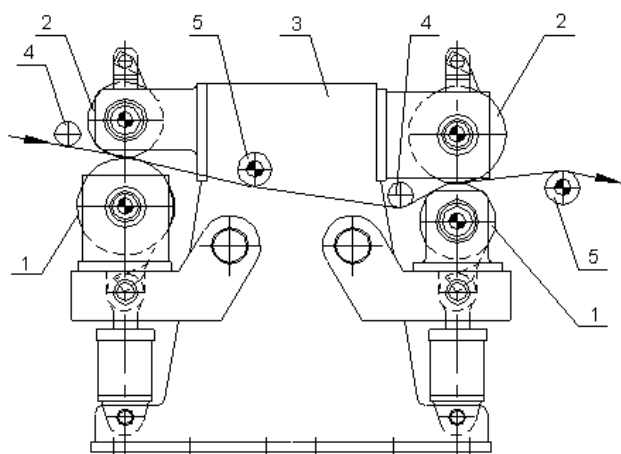
38-rasm. Olti valli kalandr:

1 – stanina; 2 – shaber; 3 – val (korpus va podshipnigi bilan); 4 – vallarni ta‘mirlash mexanizmi; 5 - vallarni siqish va ko‘tarish mexanizmi



39-rasm. 1-turdagi “yumshoq” kalandr qurilmasi.

- 1 – kalandrli val;
- 2 – qizdiriladigan;
- 3 – stanina;
- 4 – to‘g‘rilovchi val;
- 5 – qog‘oz etaklovchi val



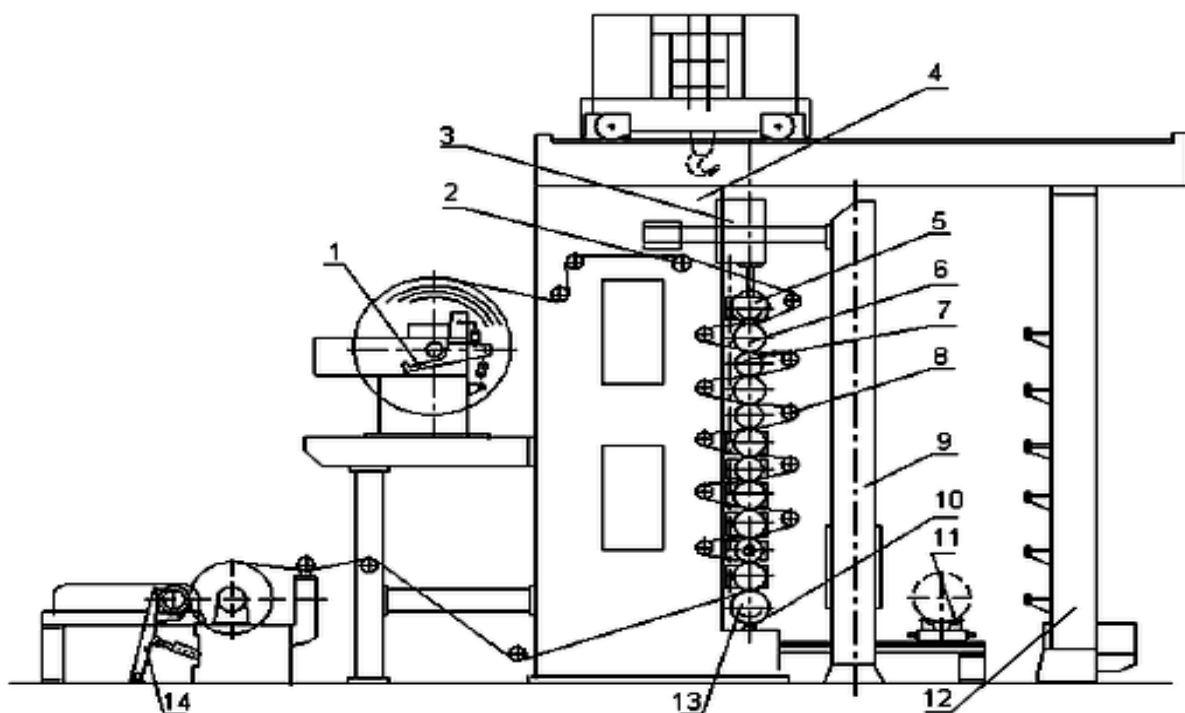
40-rasm. 2-turdagi “yumshoq” kalandr qurilmasi.

- 1 – kalandrli val;
- 2 – qizdiriladigan val;
- 3 – stanina;
- 4 – to‘g‘rilovchi val;
- 5 – qog‘oz etaklovchi val

21-jadval

Kalandrlarning texnik tavsifi

Parametrlari	Qiymatlari			
	2520		4200	
Yaratilishi	I	II	I	II
Chiziqli bosim, kN/m	110-300	110-300	110-300	110-300
Val diametri, mm :				
- kalandrli;	450	450	550	550
-termoval.	600	600	800	800
Gabarit o‘lchamlari, mm :				
-uzunligi;	2500	3500	2600	3700
-eni;	5400	5400	7100	7100
-balandligi	2800	2800	3000	3000
Massasi, t	28	45	35	60



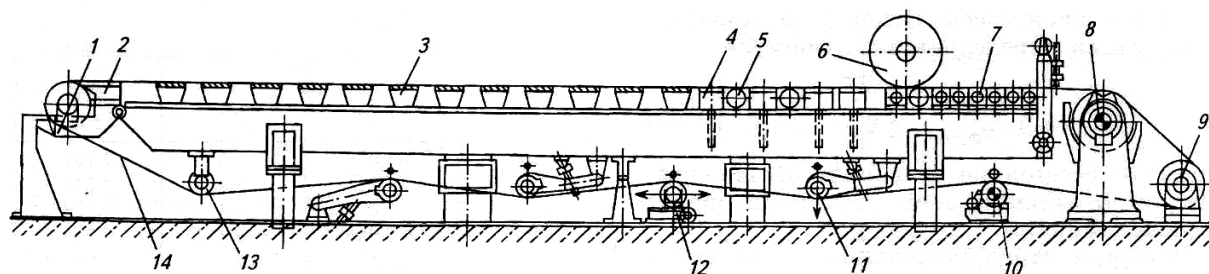
41-rasm. Superkalandr sxemasi:

1 – raskat; 2 – tug'rilovchi val; 3 – siqish mexanizmi; 4 – stanina; 5 – tepa val;
6 – to'ldirgich val; 7 – metalli val; 8 – qog'ozni etaklovchi val;
9 – ko'targich; 10 – pastki valni pasaytirish mexanizmi; 11 – pastki valni siljitish qurilmasi; 12 – to'lgan vallarni saqlash uchun ustun; 13 – pastki val; 14 - nakat

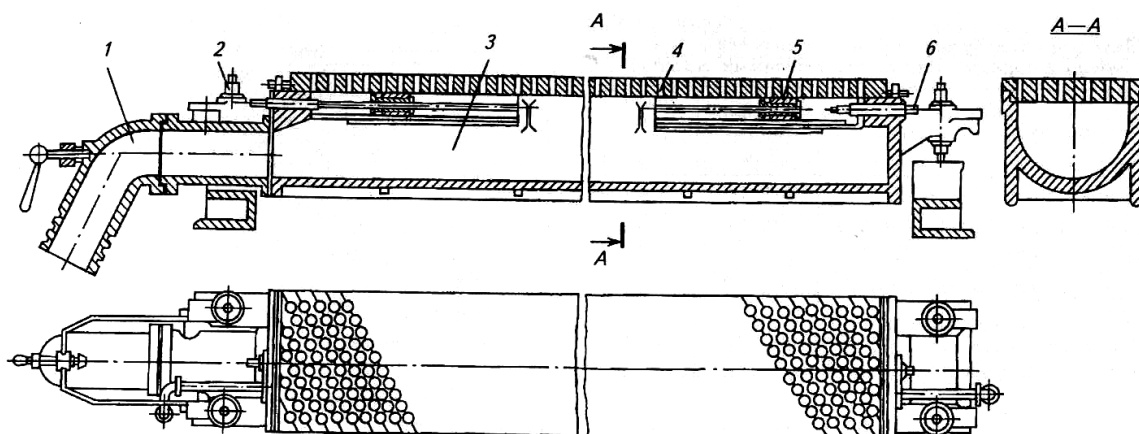
22-jadval

Superkalandrning texnik tavsifi

Parametr	Qiymatlari			
Chetlari qirqilgan polotnning eni, mm	2100	2520	3200	4200
Tezligi (hisoblangani), m/min	600			900
Chiziqli yuklanish, kN/m	300			350
Batareyadagi vallar soni, dona	8...12			
O'raladigan va o'raydigan rulon diametri, mm	1300	1500	2200	
Superkalandr massasi, t	155	180	210	250

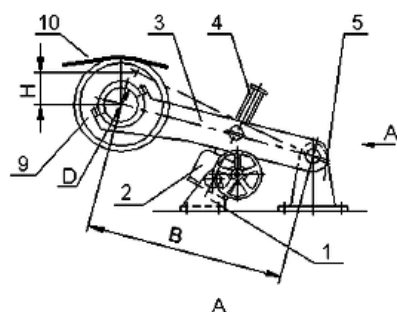


42-rasm. Ho'l, vakuum va so'ruvchi qutilar bilan ta'minlangan to'r stoli
1 – grudnoy val; 2 – shakllantiruvchi quti; 3 – “ho'l quti”; 4 – “vakuumli quti”;
5 – registrli val; 6 – tekislagich; 7 – so'ruvchi quti; 8 – so'ruvchi gauch-val;
9 – etaklovchi val; 10, 13 – to'rni harakatlantiruvchi vallar;
11 – to'rni tarranglovchi val; 12 – to'rni to'g'irlovchi val; 14 – to'r.



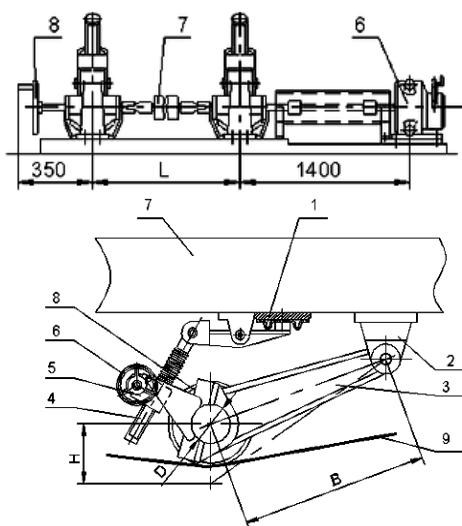
43-rasm. So'ruvchi quti:

1 – suv va havoni chiqaruvchi trubalar; 2 – quti balandligini boshqaruvchi boltlar;
3 – korpus; 4 – ko'p teshikli yoping'ich; 5 – shaber; 6 – so'rg'ich enini
boshqaruvchi vint.



44-rasm. 1 turdagi to'r tortib turgich:

1 - kronshteyn; 2 - reduktor;
3 - richag; 4 - vint; 5 - kronshteyn;
6 - pnevmodvigatel; 7 - ulovchi val;
8 - maxovik; 9 - to'r etaklovchi val;
10 - to'r.



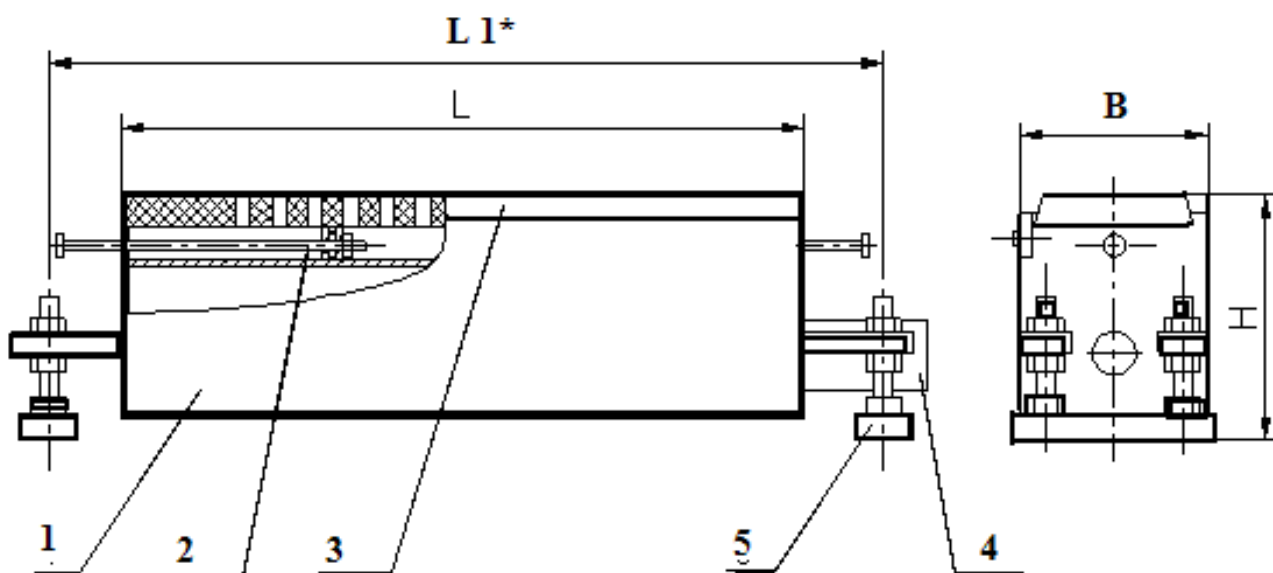
45-rasm. 2 turdagi to'r tortib turgich:

1 - membranli mexanizm;
2 - kronshteyn; 3 - richag; 4 - vint;
5 - reduktor; 6 – maxovik; 7 – to'r
stoli balkasi; 8 – to'r etaklovchi val;
9 – to'r.

23-jadval

Texnik tavsifi

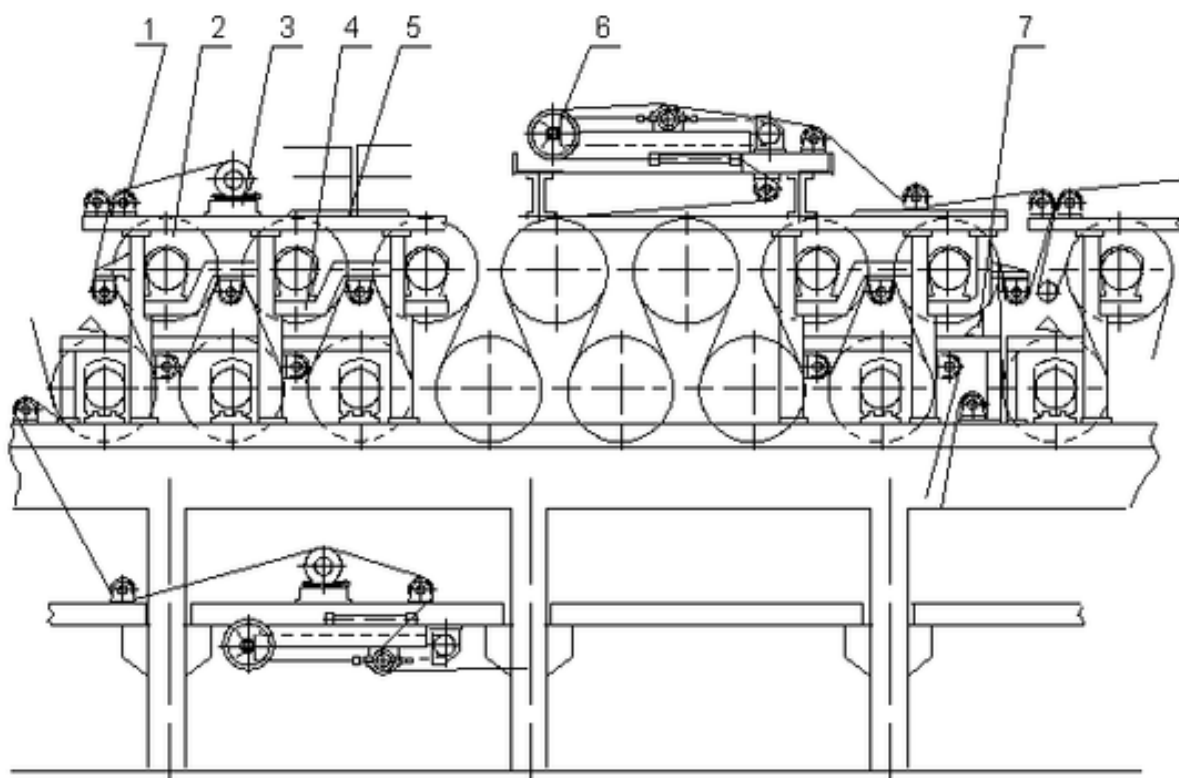
Qirqim eni, mm	L	V	N
1680	2500	1680	2500
2520	3340	2520	3340
4200	5000	4200	5000
6300	7200	6300	7200
6720	7600	6720	7600



46-rasm. So'ruvchi quti:

1 - korpus; 2 – so‘rishi soxasini boshqarish uchun qurilma; 3 - qopqoq;
4 – so‘ruvchi quvur; 5 – tayanch.

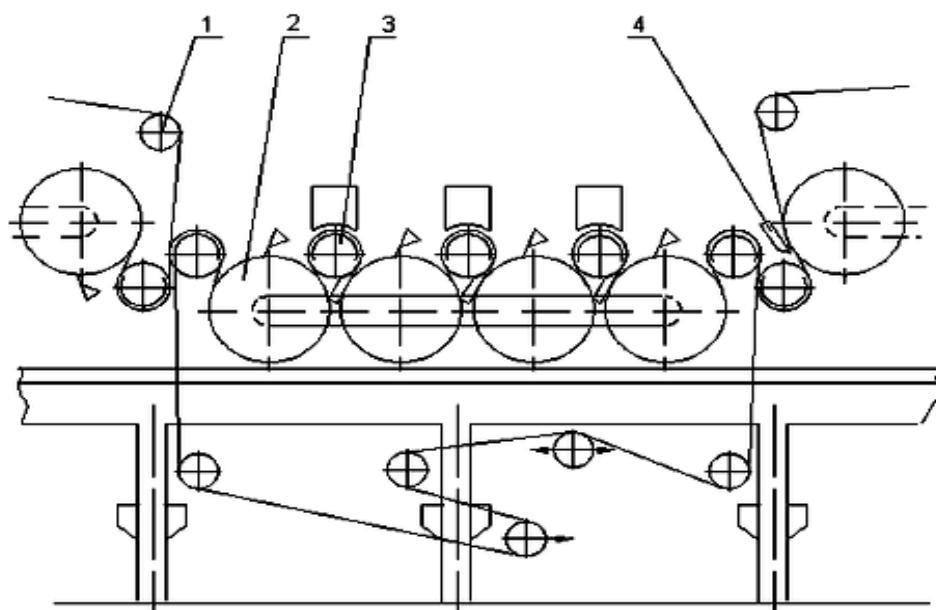
10. Qog‘oz quyish mashinasini quritish apparati



47-rasm. Ikki yarusda joylashgan silindrli quritish qismi:

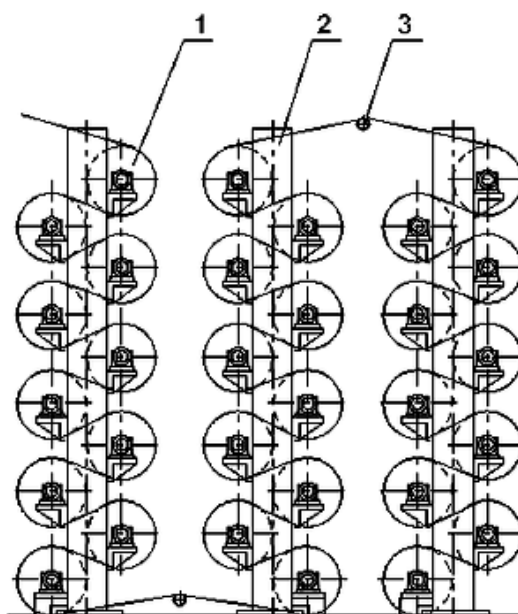
1 – to‘r etaklovchi val; 2 - quritish silindri; 3 – to‘r tug‘rilagich;
4 - stanina; 5 – ko‘prikchalar; 6 - avtomatik to‘r cho‘zgich; 7 – quritish
silindri shaberi.

Bir yarusda joylashgan silindrlar quritish qismi



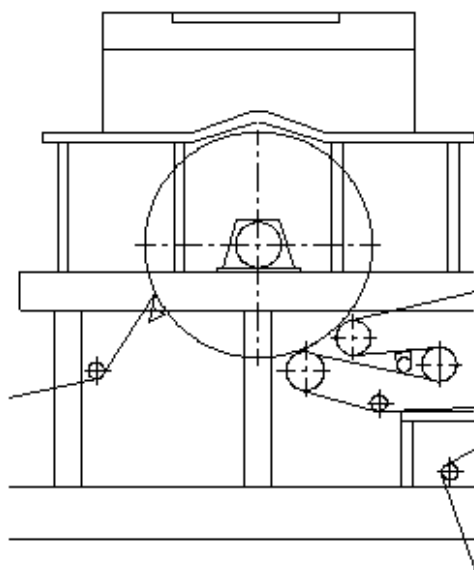
48-rasm. Bir yarusda joylashgan silindrlar quritish sxemasi:
1 – to‘r etaklovchi val; 2 - quritish silindri; 3 - tashuvchi val;
4 - polotnoni to‘g‘rilagich.

Besh yarusda joylashgan silindrlar quritish qismi



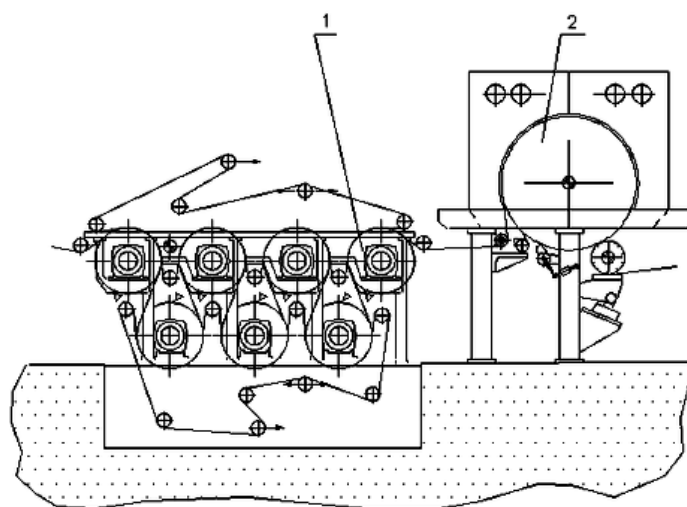
49-rasm. Besh yarusda joylashgan silindrlar quritish qismi:
1 - quritish silindri; 2 - stanina; 3 – sellyulozani etaklovchi val.

Krepirlovchi silindrli quritish qismi



50-rasm. Krepirlovchi silindrli quritish qismi

Loshlash silindrli va oxirigacha qurituvchi quritish qism



51-rasm. Loshlash silindrli va oxirigacha qurituvchi quritish sxemasi:

1 – oxirigacha qurituvchi quritish qismi; 2 - loshlovchi silindr.

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