

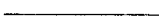




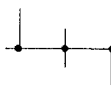
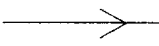
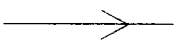
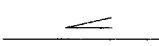
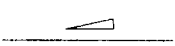
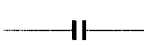
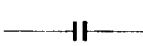


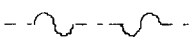
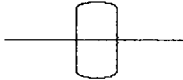
SYMBOLES DE GÉNIE CHIMIQUE

BACCALAURÉAT
Chimie de laboratoire et de procédés industriels
BREVET DE TECHNICIEN SUPÉRIEUR
Chimiste

Classification des appareils




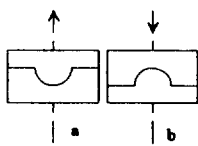





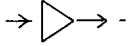

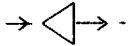



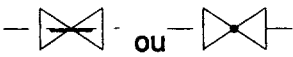




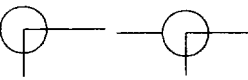
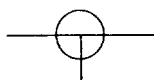


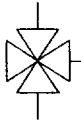
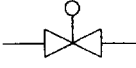
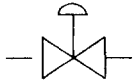



Repère	Type	Appareils	
A	AGITATEUR	Agitateurs de tous types pour homogénéiser des phases liquides	
B	BROYEUR	Concasseurs Broyeurs Pulvérisateurs	
C	COMPRESSEUR	Compresseurs Ventilateurs Pompes à vide ...	
D	COLONNE TOUR	Colonnes et tours - Rectification - Extraction	- Lavage - Absorption
E	ECHANGEUR	- Bouilleurs - Évaporateurs - Économiseurs - Surchauffeurs ...	- Réfrigérant - Condenseurs - Aéroréfrigérant ...
F	FOUR	Fours de fusion, grillage, cuisson Hauts fourneaux Sécheur	
M	MELANGEUR	Agitateurs de tous types pour homogénéiser des phases semi-fluides et solides	
P	POMPE	Pompe de tous types	
R	RESERVOIR RECIPIENT	Bac Réservoirs Ballons	Gazomètres Silos Trémies ...
S	SEPARATEUR FILTRE	Crible Décanteurs Filtres	Essoreuses Dépoussiériers Centrifugeuses ...
T	TRANSPORTEUR	Transporteurs Convoyeurs Élévateurs	Portiques Grues ...
V	CHAUDIÈRE A VAPEUR	Chaudières à vapeur Chaudières à fluide caloporteur Fours tubulaires	

Tuyauteries

Nom	Norme 1976	Norme 1995
Tuyauteries de tous types		
Croisement de tuyauteries (sans raccordement)		
Croisement de tuyauteries (avec raccordement)		
Sens d'écoulement		
Pente de tuyauterie		
Assemblage par bride		
Entrée de tuyauterie (a) Sortie de tuyauterie (b)		
Tuyauterie flexible		
Isolation thermique		

Air	A	A
Eau	E	E
- de refroidissement	ER	ER
- de lavage	EL	EL
- condensée	EC	EC
- déminéralisée	ED	ED
Vapeur	V	V
- surchauffée	VS	VS
Gaz	G	G
Diazote	GN	GN
Dihydrogène	GH	GH
Dioxygène	GO	GO
Fluide thermique	FT	FT
Fluide frigorigène	FF	FF
Fluide réfrigérant	FR	FR
Saumure	SA	SA

Robinetterie

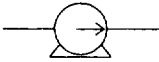
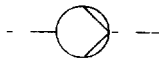









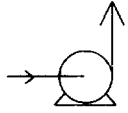
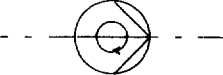


Nom	Norme 1976	Norme 1995
Robinet (symbole général)		
Disque de rupture (a) à surpression (b) à dépression		
Soupape de sûreté		
Purgeur		
Clapet de non retour		
Clapet d'arrêt		
Clapet de pied de crépine		
Robinet vanne		
Robinet à soupape		 ou 
Robinet à tournant droit		
Robinet à papillon		
Robinet d'équerre ou d'angle (2, 3 ou 4 orifices)	 	  
Robinet de régulation		 ou 
Régulateur autonome détenteur		

Accessoires


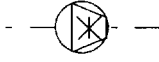




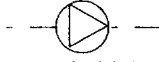
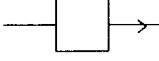
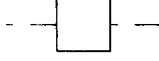


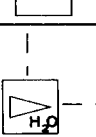
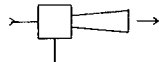
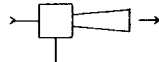
Nom	Norme 1976	Norme 1995
Évacuation		
Respiration		
Pulvérisation par buse		
Pulvérisation par rampe herse et nochière		
Florentin Séparateur avec florentin ouvert		
Florentin Séparateur avec florentin fermé		
Regard d'écoulement		
Arrête flamme		
Filtre (sur canalisation)		
Adsorbent ou Absorbent		
Accessoire divers		
Piège à vide		
Garde hydraulique		
Dispositif anti bélier		
Mise à la terre		
Siphon		

Manutention des fluides

Liquides

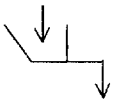
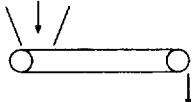
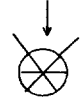
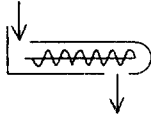
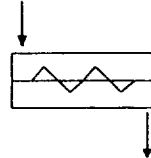
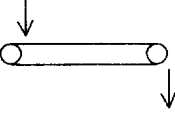
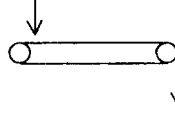
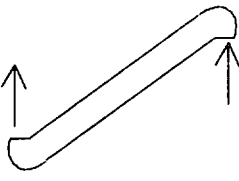

Noms	Norme 1976	Norme 1995
Pompe Symbole général		
Pompe Volumétrique		
Pompe Volumétrique à engrenages		
Pompe Volumétrique alternative à piston		
Pompe Volumétrique alternative à membrane		
Volumétrique à palette		
Pompe Rotodynamique		
Pompe centrifuge		
Pompe doseuse		

Gaz


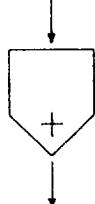
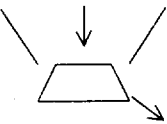
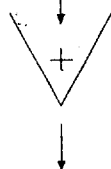
Compresseur volumétrique		
Compresseur volumétrique à palettes		
Compresseur volumétrique à piston		
Compresseur volumétrique à membrane		
Centrifuge		
Ventilateur		
Pompe à vide (en général)		
à palettes		
A anneau liquide		
Éjecteur pour le vide (à eau)		
Appareil à jet (général) injecteur éjecteur		

Manutention des solides

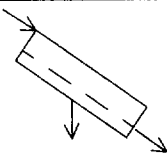
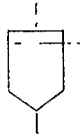
Distribution et transport

Noms	Norme 1976	Norme 1995
Distributeur (a) à bande (b) écluse	 (a)	  (a) (b)
Transporteur à hélice		
Transporteur à bande		
Transporteur à godets		

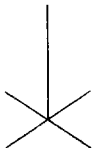
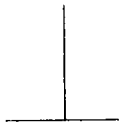
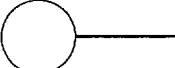
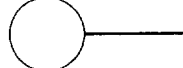
Fragmentation

Broyeur		
Concasseur		

Tamis


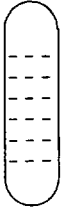

Tamis à toile		
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Agitation

Agitateur et mélangeurs de tous types		
Moteur de tout type		


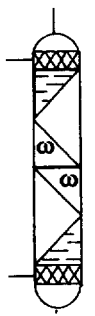
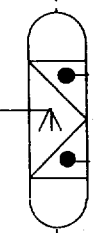
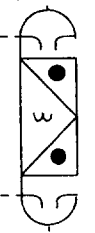
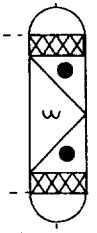
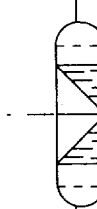
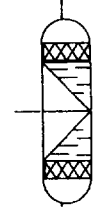
Colonnes

Normes 1976

		
Colonne	Colonne à plateaux	Colonne à garnissage


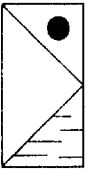
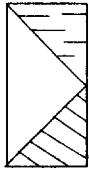
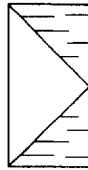
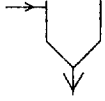
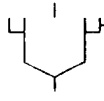


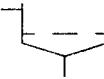
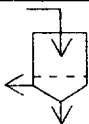
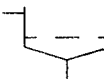
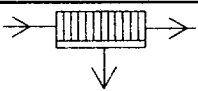
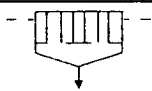
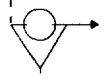
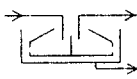
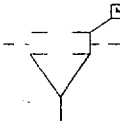

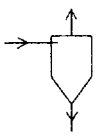
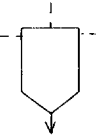
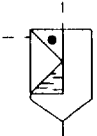
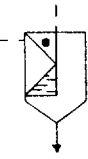
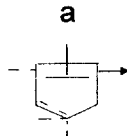
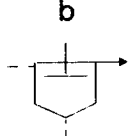
Normes 1995

On pourra se reporter à la page 'APPAREILS de SEPARATION' pour retrouver les symboles généraux

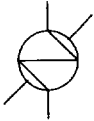
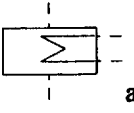
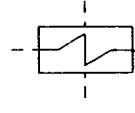
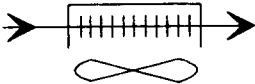
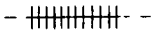
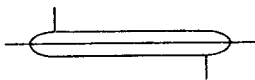
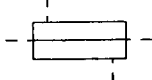
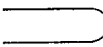
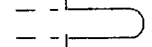
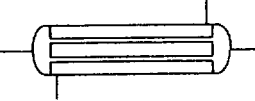
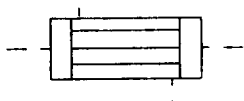
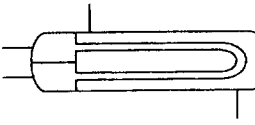
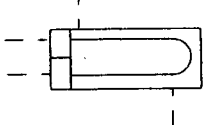
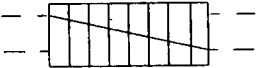
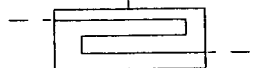
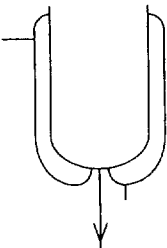
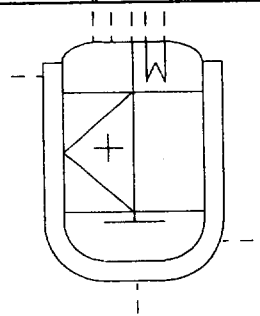
			
Extraction liquide / liquide Plateaux perforés	Extraction liquide / liquide à garnissage		
			
Séparation gaz / gaz à pulvérisation	Séparation gaz / gaz à ruissellement	Séparation gaz / gaz à garnissage	
			
Rectification- Distillation Plateaux perforés	Rectification- Distillation à garnissage		

Appareils de séparation

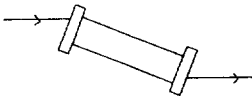
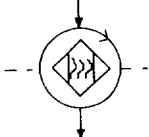
Symbole généraux des séparations

	 Sol / gaz	 Liq / gaz	 Sol / Liq	 Liq / Liq
Noms	Norme 1976		Norme 1995	
Décantation				
Filtration (général)				
à cuve ouverte				
à depression (buchner)				
Filtre-presse				
Filtre à tambour				
Essoreuse				
Centrifugeuse				
Cyclone (a) Cyclone liquide gaz (b)	 a		 a	 b
Hydrocyclone				
Flottation pneumatique (a) Flottation agitée (b)			 a	 b

Échangeurs de chaleur


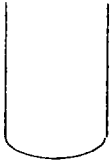

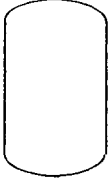

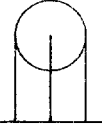
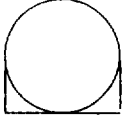
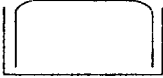
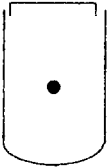



Noms	Norme 1976	Norme 1995
Symbole général		
Refroidisseur (a) Réchauffeur (b)		 
Tube à ailettes		
Double enveloppe (Liebig)		
Tube en U (épingle)		
Faisceau tubulaire		
Faisceau à tubes en U		
Echangeur à plaques		
Serpentin		
Cuve à double enveloppe Réacteur de type Grignard		

Chauffage

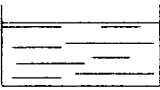

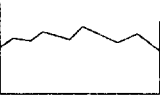
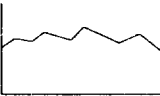
Noms	Norme 1976	Norme 1995
Séchoir tournant		

Réservoirs et produits

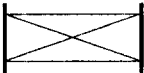

Réservoirs

Noms	Norme 1976	Norme 1995
Ouvert		
Fermé		
Sous pression		
Sphérique		
Gazomètre		
Silo	 	

Produits

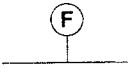

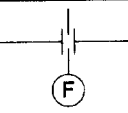
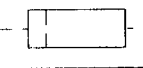


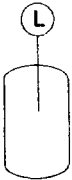
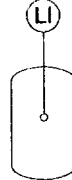
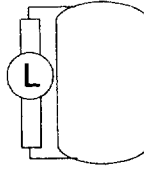

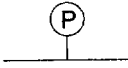
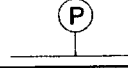
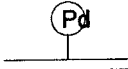
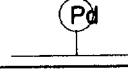


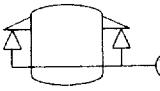
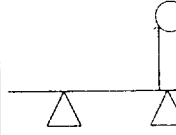
Produit liquide		
Produit solide		

Garnissage

Symbole		
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Mesures et contrôle

Symbole des grandeurs mesurées : 1ère lettre

Noms		Norme 1976	Norme 1995
Analyse	A		
Débit (Flow)	F	Symbole général 	 Compteur
		Diaphragme 	
		Rotamètre 	
Densité	D		
Niveau (Level)	L	(a) Symbole général  (a)	(c)  (c)
		(b) Niveau en verre  (b)	(d)  (d)
		(c) Point de mesure intérieur	
		(d) Indication locale de niveau	
Pression (Pressure)	P	Symbole général 	
		Pd Pression différentielle 	
Température	T	Symbole général 	
Masse	W	(a) peson  (a)	(b) bascule  (b)

Autres Grandeurs

Conductivité	C	Viscosité	N	pH	PH
Temps	K	Humidité	M	Analyse	A



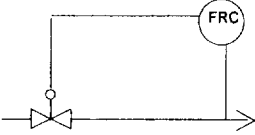
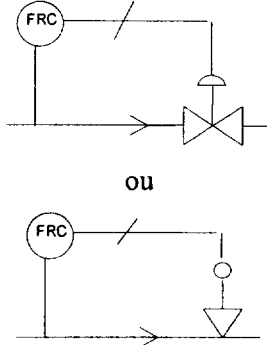
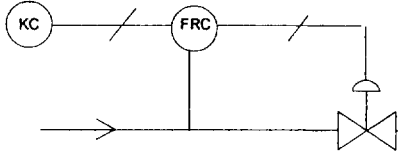
Autres lettres

Seconde lettre

Grandeur lue	I	Grandeur Enregistrée	R	Alarme	A
Totalisation	Q				
Grandeur régulée	C				

Troisième lettre

Régulation

Nom	Norme 1976	Norme 1995
Actionneur		
Débit régulé		
Débit régulé pendant un temps donné		
Débit enregistré, totalisé et régulé		