



PNEUMAX S.p.A.

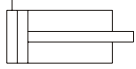
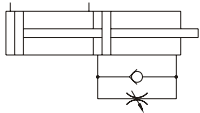

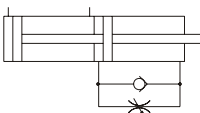
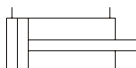
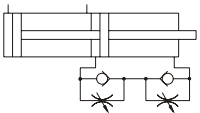
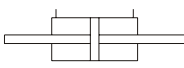
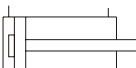
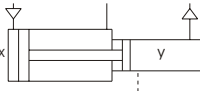
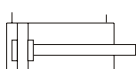
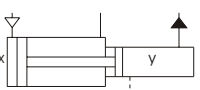
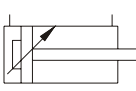
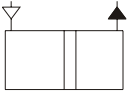
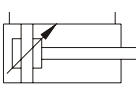
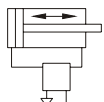
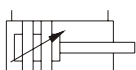
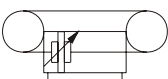
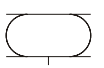
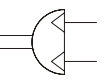
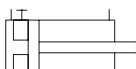
24050 LURANO (BG) - Italy
Via Cascina Barbellina, 10
Tel. 035/4192777
Fax 035/4192740
035/4192741
<http://www.pneumaxspa.com>

CAP. SOC. €. 2.700.000 I.V.
R.E.A. BERGAMO N. 160798
R.E.A. MILANO N. 931262
COD. FISC. E P.IVA 02893330163
COD. MECC. MI 322178

The components illustrated and described in the present catalogue are sold under the trade-mark PNEUMAX. Sales in Italy and abroad, are indicated in the last coverpage.

The overall dimensions and technical information are provided solely for informative reasons, and may be subject to change without notice.

	Series	Section
Pneumatic symbols Tables	0	0
Microcylinders according to standard ISO 6432 - threaded end covers version - rolled end covers version - "MIR" - rolled end covers version - "MIR-INOX" Linear control units Piston rod lock Special performance microcylinders	1200	1
Heavy duty tie rod cylinders according to standard CNOMO - CETOP - ISO	1303 ÷ 1308	2
Profile tube cylinders according to standard ISO 6431 - VDMA 24562 Linear control unit Piston rod lock Accessories	1319 ÷ 1321 1325 ÷ 1326 1330 ÷ 1333 1348 ÷ 1350 1380 ÷ 1382	3
Hydraulic speed controll check cylinders	1400	4
Short stroke compact cylinders Europe Compact cylinders	1500	5
Rodless cylinders Cable cylinders	1600	6
Sensors for cylinders		7

Cylinders		Hydropneumatic Cylinders	
Single acting cylinder with external return		Hydropneumatic cylinder with constant and uniform movement adjustable positive stroke	
Single acting cylinder with spring return		Hydropneumatic cylinder with constant and uniform movement adjustable negative stroke	
Double acting cylinder, standard rod		Hydropneumatic cylinder with constant and uniform movement adjustable positive and negative stroke	
Double acting cylinder, double rod		Pressure boosters	
Cylinder with rear cushion, not adjustable		Air-Air intensifier	
Cylinder with front and rear non-adjustable cushion		Air-oil intensifier	
Cylinder with adjustable rear cushion		Oil-pneumatic accumulator	
Cylinder with adjustable cushion			
Continuous-acting cylinder			
Cylinder with magnetic piston			
Cable cylinder			
Bellows cylinder			
Rotating cylinder			
Impact cylinder			



Forces expressed in N (0,102 Kg)

Ø		working pressure in bar								
mm	inches	2	3	4	5	6	7	8	9	10
8		10	15	20	25	30	35	40	45	50
10		16	23	31	39	47	55	62	70	78
12		22,5	34	45	56,5	68	79	90,5	102	113
16		40	60	80	100	120	140	160	180	200
20		63	94	125	157	188	220	251	283	314
25		98	147	196	245	294	343	392	441	490
32	1 1/4"	158	238	317	397	476	555	635	714	793
40		250	377	506	628	753	879	1005	1130	1256
44,5	1 3/4"	311	466	622	777	933	1088	1244	1399	1555
50	2 1/2"	392	589	786	982	1178	1375	1571	1768	1964
63	3"	623	935	1247	1559	1870	2182	2494	2805	3117
76,2		912	1368	1824	2280	2736	3192	3648	4104	4560
80	4"	1005	1508	2010	2513	3016	3518	4021	4523	5026
100	5"	1570	2355	3140	3925	4710	5495	6280	7055	7850
125		2454	3681	4908	6136	7363	8590	9817	11044	12271
152,5	6"	3648	5472	7296	9120	10944	12768	14592	16416	18240
160		4021	6032	8042	10053	12064	14074	16085	18095	20106
200	8"	6280	9420	12560	15700	18840	21980	25120	28260	31400
250	10"	10134	15201	20268	25335	30402	35469	40536	45603	50670
304,8	12"	14593	21890	29185	36483	43779	51066	58372	65669	72965
355,6	14"	19863	29795	39726	49657	59588	69520	79451	89383	99314

The forces indicated are strictly theoretical. For practical use we recommend increasing these values by 25%.

Air consuption in NI/min. for cm. of stroke at working pressure (bar)

Cil. Ø (mm)	usable surface (cm ²)	operating pressure (bar)											
		1	2	3	4	5	6	7	8	9	10		
32	push	8,0384	qs	0,016	0,024	0,032	0,040	0,048	0,056	0,064	0,072	0,082	0,088
	pull	6,9080	qt	0,014	0,021	0,028	0,035	0,042	0,049	0,056	0,063	0,070	0,076
40	push	12,560	qs	0,025	0,038	0,050	0,063	0,076	0,088	0,100	0,113	0,126	0,188
	pull	10,020	qt	0,020	0,030	0,040	0,050	0,060	0,070	0,080	0,090	0,100	0,110
50	push	19,625	qs	0,039	0,059	0,079	0,098	0,118	0,137	0,157	0,177	0,196	0,216
	pull	17,082	qt	0,034	0,051	0,068	0,085	0,102	0,120	0,137	0,154	0,170	0,188
63	push	31,156	qs	0,062	0,093	0,125	0,156	0,187	0,218	0,249	0,280	0,312	0,343
	pull	27,258	qt	0,055	0,072	0,109	0,136	0,164	0,191	0,218	0,245	0,273	0,300
80	push	50,240	qs	0,100	0,150	0,200	0,250	0,301	0,351	0,402	0,452	0,502	0,552
	pull	46,441	qt	0,093	0,139	0,186	0,232	0,279	0,325	0,372	0,418	0,464	0,510
100	push	78,500	qs	0,157	0,236	0,314	0,382	0,471	0,549	0,628	0,706	0,785	0,862
	pull	71,435	qt	0,143	0,214	0,286	0,357	0,429	0,500	0,571	0,643	0,714	0,786
125	push	22,656	qs	0,245	0,368	0,490	0,613	0,736	0,859	0,981	1,104	1,226	1,349
	pull	115,591	qt	0,231	0,346	0,462	0,578	0,694	0,809	0,925	1,040	1,156	1,272
160	push	200,960	qs	0,402	0,603	0,804	1,005	1,206	1,407	1,608	1,809	2,010	2,211
	pull	188,400	qt	0,377	0,565	0,754	0,942	1,130	1,319	1,507	1,696	1,884	2,072
200	push	314,000	qs	0,628	0,942	1,256	1,570	1,884	2,198	2,512	2,826	3,140	3,454
	pull	301,440	qt	0,603	0,904	1,206	1,507	1,809	2,110	2,412	2,713	3,014	3,316

To calculate air consumption use the following formula:

$Q = H \times (qs + qt) \times h$
 where Q = air consumption for NI/min.
 qs = air consuption for cm. of stroke (push)
 qt = air consuption for cm. of stroke (pull)
 h = cycles per minute
 H = cylinder stroke in cm.



Conversion Tables

Pressure conversion tables

Equivalents:

- 1 bar = 100 KPa
- 1 bar = 14,5 PSI
- 1 bar = 1,02 kg/cm²

Units of length

BAR	KPa	PSI	Kg/cm ²	BAR	KPa	PSI	Kg/cm ²
0,1	10	1,450	0,102	11	1100	159,50	11,22
0,2	20	2,900	0,204	12	1200	174,00	12,24
0,3	30	4,350	0,306	13	1300	188,50	13,26
0,4	40	5,800	0,408	14	1400	203,00	14,28
0,5	50	7,250	0,510	15	1500	217,50	15,30
0,6	60	8,700	0,612	16	1600	232,00	16,32
0,7	70	10,150	0,714	17	1700	246,50	17,34
0,8	80	11,160	0,816	18	1800	261,00	18,36
0,9	90	13,050	0,918	19	1900	275,50	19,38
1,0	100	14,500	1,020	20	2000	290,00	20,04
1,5	150	21,750	1,530	25	2500	362,50	25,50
2,0	200	29,000	2,040	30	3000	435,00	30,60
2,5	250	36,250	2,550	35	3500	507,50	35,70
3,0	300	43,500	3,060	40	4000	580,00	40,80
3,5	350	50,750	3,570	45	4500	652,50	45,90
4,0	400	58,000	4,080	50	5000	725,00	51,00
4,5	450	65,250	4,590	55	5500	797,50	56,10
5,0	500	72,500	5,100	60	6000	870,00	61,20
5,5	550	79,750	5,610	65	6500	942,50	66,30
6,0	600	87,000	6,120	70	7000	1015,00	71,40
7,0	700	101,500	7,140	75	7500	1087,50	76,50
8,0	800	116,000	8,160	80	8000	1160,00	81,60
9,0	900	130,500	9,180	90	9000	1305,00	91,80
10,0	1000	145,000	10,200	100	10000	1450,00	102,00

Measure and conversion units

Unit	Abbreviation	SI unit	Conversion factors
Units of length			
1 inch	in	2,54 cm	0,393701
1 foot = 12 in = 3 hands	ft	30,48 cm	0,0328084
1 yard = 3 feet = 4 spans	yd	0,9144 m	1,09361
1 mile (Landmile)	mi	1,609 km	0,62137
1 nautical mile (internat.)	n mi. NM	1,852 km	0,539957
Units of area			
1 square inch	sq in	6,4516 cm ²	0,155000
1 square foot = 144 sq in	sq ft	929,03 cm ²	1,0764 x 10 ⁻³
1 square yard = 9 sq ft	sq yd	0,83613 m ²	1,19599
1 square mile = 640 acres	sq mi	2,5900 km ²	0,38610
Units of volume			
1 cubic inch	cu in	16,387 cm ³	0,061024
1 cubic foot = 1728 cu in	cu ft	28,317 dm ³	0,035315
1 cubic yard = 27 cu ft	cu yd	0,76455 m ³	1,30795
1 register ton = 100 cu ft		2,8317 m ³	0,35314
1 shipping ton		1,13268 m ³	0,88286
1 fluid ounce (GBr)	fl oz	0,028413 dm ³	35,1950
1 fluid ounce (USA)	fl oz	0,029574 dm ³	33,8138
1 pint = 4 gills (GBr)	(liq) pt	0,56826 dm ³	1,75975
1 pint = 4 gills (USA)	liq pt	0,47318 dm ³	2,11336
1 dry pint	dry pt	0,55061 dm ³	1,81616
1 quart = 2 pints (GBr)	(liq) qt	1,13652 dm ³	0,87988
1 quart = 2 pints (USA)	liq qt	0,94636 dm ³	1,05668
1 dry quart	dry qt	1,10123 dm ³	0,908077
1 gallon = 2 pottles (GBr)	gal	4,54609 dm ³	0,219969
1 gallon (USA)	gal	3,78543 dm ³	0,264170
1 bushel = 4 pecks (GBr)	bu	36,3687 dm ³	0,0274962
1 bushel = 4 pecks (USA)	bu	35,2393 dm ³	0,0283774
1 dry barrel		115,628 dm ³	0,0086484
1 petroleum barrel		158,762 dm ³	0,0062987
Units of force			
1 pound-weight	lb wt	4,448221 N	0,2248089
1 pound-force	LB, lbt	4,448221 N	0,2248089
1 poundal	pdl	0,138255 N	7,23301
1 kilogramme-force	kgf, kgp	9,80665 N	0,1019716
1 short ton-weight	Sh tn wt	8,896444 kN	0,1124045
1 long ton-weight	ltn wt	9,964015 kN	0,1003611
1 ton-force	Ton, tonf	9,964015 kN	0,1003611

Unit	Abbreviation	SI unit	Conversion factors
Units of pressure (force/area)			
1 pound-weight per square inch	lb wt/sq in ppsi, psi	6,8948 kN/m ²	0,145038
1 pound-weight per square foot	lb wt/sq ft ppsf, psf	47,880 N/m ²	0,0208854
1 kilogramme-force/sq in	kgf/sq in	1,52003 N/m ²	0,657880
1 short ton-weight/sq in		13,7895 N/mm ²	0,072552
1 ton-force/sq in	Ton/sq in	15,4443 N/mm ²	0,064749
1 foot of water	ft H ₂ O	0,029891 bar	33,455
1 inch of Hg	In Hg	0,033864 bar	29,530
Units of work and energy			
1 foot pound-weight	ft lb wt	1,355821 J	0,737561
1 foot pound-force	ft Lb, ft lbf	1,355817 J	0,737563
11 foot-poundal	ft pdl	0,0421401 J	23,7304
1 British Thermal Unit (internat. steam table)	Blu, BTU B. th. u.	1,055056 KJ	0,947817
1 horse-power hour	hph, H Phr h. p. hr	0,293071 Wh 2,6845 MJ	3,412141 0,37251
		0,74570 KWh	1,34102
Units of power (work/time)			
1 foot pound-weight/s	ft lb wt/s	1,355821 W	0,737561
1 British thermal unit/s	Btu/s	1,055056 kW	0,947817
1 British thermal unit/h	Btu/h	0,293071 W	3,41214
1 horse power	hp, h. p.	0,74570 kW	1,34102
Units of mass			
1 grain	gr	64,7989 mg	0,0154324
1 dram	dr	1,77185 g	0,564383
1 ounce = 16 drams	oz	28,3495 g	0,0352739
1 pound = 16 oz	lb	0,453592 kg	2,204622
1 quarter = 28 lb (lbs)		12,7006 kg	0,078737
1 hundredweight = 112 lb	cwt	50,8024 kg	0,0196841
1 long hundredweight	l cwt	50,8024 kg	0,0196841
1 short hundredweight	sh cwt	45,3592 kg	0,0220462
1 ton = 1 long ton	tn, ltn	1,016047 t	0,984206
1 short ton = 2000 lb	sh tn	0,907185 t	1,102311



TABLE OF THE SYMBOLS OF UNI 7164 AND ISO 3498 STANDARDS IN CORRESPONDENCE WITH THE LUBRICANTS OF THE COMPANY LISTED

UNI	SYMBOL	CONTRIB	EIF	ESSO	EURAL	FINA	FUCHS	IGLEA	IP	ISADIL	UNI
A	AN 68	LUBRIF. A 300/14	AVANCE 68	ELITE 68	ELITE 68	AVANCE 68	REYNOL 68	IGLEA 68	IP 100/14 OIL 68	ISADIL 68	ORIGIAN 68
	CB 32	OLIO: 100 ED 22	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	REYNOL 32	IGLEA 32	IP 100/14 OIL 32	ISADIL 32	ORIGIAN 32
	CB 68	OLIO: 100 ED 60	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	REYNOL 68	IGLEA 68	IP 100/14 OIL 68	ISADIL 68	ORIGIAN 68
	CB 150	OLIO: 100 ED 150	OLIO: 5 150	OLIO: 5 150	OLIO: 5 150	OLIO: 5 150	REYNOL 150	IGLEA 150	IP 100/14 OIL 150	ISADIL 150	ORIGIAN 150
C	CC 100	OLIO: 100 ED 100	OLIO: 5 100	OLIO: 5 100	OLIO: 5 100	OLIO: 5 100	REYNOL 100	IGLEA 100	IP 100/14 OIL 100	ISADIL 100	ORIGIAN 100
	CC 320	OLIO: 100 ED 320	OLIO: 5 320	OLIO: 5 320	OLIO: 5 320	OLIO: 5 320	REYNOL 320	IGLEA 320	IP 100/14 OIL 320	ISADIL 320	ORIGIAN 320
	CC 460	OLIO: 100 ED 460	OLIO: 5 460	OLIO: 5 460	OLIO: 5 460	OLIO: 5 460	REYNOL 460	IGLEA 460	IP 100/14 OIL 460	ISADIL 460	ORIGIAN 460
	CC 680	OLIO: 100 ED 680	OLIO: 5 680	OLIO: 5 680	OLIO: 5 680	OLIO: 5 680	REYNOL 680	IGLEA 680	IP 100/14 OIL 680	ISADIL 680	ORIGIAN 680
F	FB 5	OLIO: 100 ED 5	OLIO: 5 5	OLIO: 5 5	OLIO: 5 5	OLIO: 5 5	REYNOL 5	IGLEA 5	IP 100/14 OIL 5	ISADIL 5	ORIGIAN 5
	FB 10	OLIO: 100 ED 10	OLIO: 5 10	OLIO: 5 10	OLIO: 5 10	OLIO: 5 10	REYNOL 10	IGLEA 10	IP 100/14 OIL 10	ISADIL 10	ORIGIAN 10
	FB 22	OLIO: 100 ED 22	OLIO: 5 22	OLIO: 5 22	OLIO: 5 22	OLIO: 5 22	REYNOL 22	IGLEA 22	IP 100/14 OIL 22	ISADIL 22	ORIGIAN 22
	FB 32	OLIO: 100 ED 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	REYNOL 32	IGLEA 32	IP 100/14 OIL 32	ISADIL 32	ORIGIAN 32
G	GB 10	OLIO: 100 ED 10	OLIO: 5 10	OLIO: 5 10	OLIO: 5 10	OLIO: 5 10	REYNOL 10	IGLEA 10	IP 100/14 OIL 10	ISADIL 10	ORIGIAN 10
	GB 22	OLIO: 100 ED 22	OLIO: 5 22	OLIO: 5 22	OLIO: 5 22	OLIO: 5 22	REYNOL 22	IGLEA 22	IP 100/14 OIL 22	ISADIL 22	ORIGIAN 22
	GB 32	OLIO: 100 ED 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	REYNOL 32	IGLEA 32	IP 100/14 OIL 32	ISADIL 32	ORIGIAN 32
	GB 68	OLIO: 100 ED 68	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	REYNOL 68	IGLEA 68	IP 100/14 OIL 68	ISADIL 68	ORIGIAN 68
H	HA 32	OLIO: 100 ED 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	OLIO: 5 32	REYNOL 32	IGLEA 32	IP 100/14 OIL 32	ISADIL 32	ORIGIAN 32
	HA 68	OLIO: 100 ED 68	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	OLIO: 5 68	REYNOL 68	IGLEA 68	IP 100/14 OIL 68	ISADIL 68	ORIGIAN 68
	HA 150	OLIO: 100 ED 150	OLIO: 5 150	OLIO: 5 150	OLIO: 5 150	OLIO: 5 150	REYNOL 150	IGLEA 150	IP 100/14 OIL 150	ISADIL 150	ORIGIAN 150
	HA 320	OLIO: 100 ED 320	OLIO: 5 320	OLIO: 5 320	OLIO: 5 320	OLIO: 5 320	REYNOL 320	IGLEA 320	IP 100/14 OIL 320	ISADIL 320	ORIGIAN 320
X	X1	OLIO: 100 ED 100	OLIO: 5 100	OLIO: 5 100	OLIO: 5 100	OLIO: 5 100	REYNOL 100	IGLEA 100	IP 100/14 OIL 100	ISADIL 100	ORIGIAN 100
	X2	OLIO: 100 ED 200	OLIO: 5 200	OLIO: 5 200	OLIO: 5 200	OLIO: 5 200	REYNOL 200	IGLEA 200	IP 100/14 OIL 200	ISADIL 200	ORIGIAN 200
	X3	OLIO: 100 ED 300	OLIO: 5 300	OLIO: 5 300	OLIO: 5 300	OLIO: 5 300	REYNOL 300	IGLEA 300	IP 100/14 OIL 300	ISADIL 300	ORIGIAN 300
	X4	OLIO: 100 ED 400	OLIO: 5 400	OLIO: 5 400	OLIO: 5 400	OLIO: 5 400	REYNOL 400	IGLEA 400	IP 100/14 OIL 400	ISADIL 400	ORIGIAN 400

Provided by S.T.A.N.I.M.U.C. - Turin

* Oils recommended for pneumatic system

TABLE OF THE SYMBOLS OF UNI 7164 AND ISO 3498 STANDARDS IN CORRESPONDENCE WITH THE LUBRICANTS OF THE COMPANY LISTED

A	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
B	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
C	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
D	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
E	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
F	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
G	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
H	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE
X	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE	LUSTRIFICANTI PER PNEUMAZIONE

Provided by S.T.A.N.I.M.U.C. - Turin

* Oils recommended for pneumatic system









Solid substances					
Substance	Specific gravity	Fusion temp. °C	Substance	Specific gravity	Fusion temp. °C
Unalloyed steel	7,8	1480	White metal	7,5 ... 10,1	300 ... 400
Stainless steel	7,8	1450	Hard metal K10	14,7	> 2000
Tungsten steel	8,7	1450	Hard metal P10	11,1	> 2000
Aluminium Al	2,7	660	Mica	2,6 ... 3,6	~ 1300
Nickel silver	8,6	1050	Molybdenum Mo	10,2	2600
Antimony Sb	6,67	630	Nickel Ni	8,85	1450
Silver	10,5	960	Gold	19,83	1063
Bronze (94 Cu 6 Sn)	7,4 ... 8,9	900	Iron oxide	5,1	1565
Antiacid Bronze	8,78	990	Brass 63/37	8,5	900 ... 1000
Cadmium	8,64	321	Paraffin	0,92	54
Calcium	1,55	851	Lead Pb	11,34	327
Cement	1,65	-	Synthetic plastic	1,4 ÷ 1,5	-
Cobalt	8,9	1490	Platinum Pt	21,45	1775
Corundum	3,9 ... 4,0	2050	Copper Cu	8,93	1085
Chromium	7,1	1890	Emery	4,0	2200
Diamond	3,51	~ 3500	Tin Sn	7,28	232
Iron	7,86	1539	Titanium Ti	4,6	3380
Cast iron	7,25	1150 ... 1250	Tungsten W	19,3	3370
Rubber	1,1	-	Vanadium V	6,1	1800
Manganese	7,3	1260	Zinc Zn	7,15	420
Magnesium	1,75	650	Die-cast zinc	6,8	390

Liquid substances			Gaseous substances		
Substance	Specific gravity	Fusion temp. °C	Substance	Specific gravity	Fusion temp. °C
Distilled water	1,0	0	AcetyleneC ₂ H ₂	0,91	-81
Ethanol	0,79	-117	Carbon dioxideCo ₂	1,53	-57
Gasoline	0,68 ... 0,75	-30 ... -50	Air	1	-220
Pure benzol	0,88	+64	Nitrogen N ₂	0,97	-210
Gas oil	0,88 ... 1	-5	Illumination gas.....	0,47	-230
Mercury	13,59	-38,9	Hydrogen H ₂	0,07	-257
Lube oil	0,91	-20	Neon Ne	0,69	-249
Machine oil	0,91	-5	Carbon monoxide CO	0,97	-205
Petroleum	0,81	-70	Oxygen O ₂	1,1	-218
Perchloroethylene.....	1,62		Water vapor 100°C	0,62	0









General Weight

Steel weight in Kg. per meter (specific gravity 7,85)

Size mm.	 Round	 Hexagonal	 Square	Size mm.	 Round	 Hexagonal	 Square
2	0.024	0.027	0.031	44	11.83	13.16	15.20
2,5	0.038	0.042	0.049	45	12.50	13.77	15.90
3	0.055	0.061	0.070	46	12.93	14.40	16.60
3,5	0.075	0.083	0.096	48	14.20	15.67	18.09
4	0.098	0.109	0.126	50	15.40	17.00	19.60
4,5	0.125	0.138	0.159	52	16.70	18.51	21.22
5	0.154	0.170	0.196	53	17.30	19.10	22.05
6	0.222	0.245	0.283	54	17.96	19.81	22.89
7	0.302	0.333	0.385	55	18.70	20.60	23.70
8	0.395	0.435	0.502	56	19.30	21.31	24.62
9	0.499	0.551	0.636	58	20.70	22.87	26.41
10	0.617	0.680	0.785	60	22.20	24.47	28.30
11	0.746	0.823	0.950	62	23.69	26.13	30.17
12	0.888	0.979	1.130	64	25.24	27.84	32.15
13	1.04	1.140	1.33	65	26.00	28.72	33.20
14	1.21	1.33	1.54	66	26.84	29.61	34.19
15	1.39	1.52	1.77	68	28.50	31.43	36.30
16	1.58	1.73	2.01	70	30.20	33.30	38.50
17	1.78	1.96	2.27	72	31.84	35.24	40.69
18	2.00	2.18	2.54	74	33.74	37.23	42.98
19	2.23	2.45	2.83	75	34.70	38.20	44.20
20	2.47	2.70	3.14	76	35.60	39.26	45.34
21	2.72	3.00	3.44	78	37.50	41.36	47.75
22	2.98	3.29	3.80	80	39.50	43.50	50.20
23	3.26	3.57	4.12	90	49.90	55.07	63.58
24	3.55	3.92	4.52	100	61.62	67.98	78.50
25	3.85	4.21	4.91	110	74.60	82.26	94.99
26	4.17	4.60	5.26	120	88.80	97.90	113
27	4.49	4.96	5.72	130	104	114.9	132.7
28	4.83	5.29	6.10	140	121	133.3	153.9
29	5.14	5.67	6.54	150	139	153	176.6
30	5.55	6.12	7.06	160	158	174	201
31	5.87	6.46	7.54	170	178	196.5	226.9
32	6.31	6.96	8.04	180	200	220.3	254.3
33	6.71	7.32	8.55	190	223	245.4	283.4
34	7.06	7.86	9.07	200	247	271.9	314
35	7.55	8.33	9.62	210	272	299.8	346.2
36	7.99	8.81	10.20	220	298	329	379.9
37	8.37	9.30	10.75	230	326	359.6	415.3
38	8.90	9.81	11.34	240	355	391.6	452.2
39	9.38	10.34	11.94	250	385	424.9	490.6
40	9.86	10.88	12.60	260	417	459.6	430.7
41	10.28	11.40	13.20	270	449	495.6	572.3
42	10.91	12.00	13.85	280	483	533	615.4
				300	554.8	611.8	706.5



Ot 58 Brass weight in Kg. per meter (specific gravity 8,5)

Size mm.	 Round	 Hexagonal	 Square	Size mm.	 Round	 Hexagonal	 Square
2	0.026	0.028	0.034	44	12.924	14.259	16.457
2,5	0.041	0.045	0.052	45	13.518	14.915	17.213
3	0.060	0.066	0.076	46	14.126	15.585	17.988
3,5	0.081	0.089	0.103	48	15.385	16.974	19.591
4	0.106	0.116	0.134	50	16.690	18.414	21.253
4,5	0.135	0.148	0.159	52	18.051	19.916	22.986
5	0.167	0.184	0.212	53	18.752	20.689	23.878
6	0.240	0.264	0.305	54	19.466	21.455	24.788
7	0.327	0.360	0.416	55	20.196	22.283	25.717
8	0.428	0.472	0.545	56	20.935	23.098	26.658
9	0.542	0.598	0.690	58	22.457	24.777	28.596
10	0.667	0.735	0.849	60	24.033	26.516	30.603
11	0.809	0.892	1.030	62	25.662	28.314	32.627
12	0.963	1.062	1.226	64	27.344	30.169	34.820
13	1.128	1.244	1.436	65	28.205	31.119	35.916
14	1.308	1.443	1.665	66	29.080	32.085	37.030
15	1.502	1.657	1.912	68	30.869	34.059	39.308
16	1.709	1.885	2.176	70	32.716	36.097	41.660
17	1.929	2.128	2.456	72	34.607	38.183	44.068
18	2.163	2.386	2.754	74	36.556	40.333	46.550
19	2.410	2.659	3.068	75	37.553	41.433	47.820
20	2.670	2.946	3.400	76	38.560	42.544	49.102
21	2.944	3.248	3.748	78	40.616	44.813	51.708
22	3.231	3.564	4.114	80	42.725	47.140	54.406
23	3.532	3.897	4.497	90	54.074	59.662	68.858
24	3.845	4.242	4.896	100	66.759	73.658	85.011
25	4.173	4.604	5.313	110	80.829	88.587	102.928
26	4.513	4.979	5.746	120	96.135	106.070	122.419
27	4.867	5.369	6.197	130	112.820	124.479	143.665
28	5.234	5.774	6.665	140	130.849	144.371	166.165
29	5.614	6.194	7.148	150	150.203	165.725	191.269
30	6.009	6.629	7.651	160	170.901	188.562	217.626
31	6.416	7.079	8.170	170	192.933	212.871	245.682
32	6.835	7.541	8.703	180	216.299	238.652	275.436
33	7.270	8.021	9.257	190	241.000	265.906	306.891
34	7.717	8.514	9.826	200	237.036	294.632	340.045
35	8.178	9.023	10.413	210	294.406	324.831	374.899
36	8.652	9.546	11.017	220	323.110	356.501	411.450
37	9.139	10.083	11.637	230	353.464	389.992	450.103
38	9.639	10.635	12.274	240	384.561	424.270	489.664
39	10.154	11.203	12.930	250	417.239	460.358	531.315
40	10.684	11.788	13.605	260	451.290	497.928	574.676
41	11.222	12.381	14.290	270	486.676	536.971	619.737
42	11.776	12.992	14.995	280	523.387	577.476	665.992
				300	600.831	662.923	765.103



Aluminium weight in Kg. per meter (specific gravity 2,7)

Size mm.	Round	Hexagonal	Square	Size mm.	Round	Hexagonal	Square
2	0.008	0.009	0.011	44	4.105	4.526	5.229
2,5	0.013	0.014	0.016	45	4.294	4.735	5.468
3	0.019	0.021	0.024	46	4.487	4.947	5.715
3,5	0.025	0.028	0.031	48	4.886	5.387	6.224
4	0.034	0.037	0.043	50	5.302	5.845	6.570
4,5	0.043	0.047	0.054	52	5.734	6.322	7.304
5	0.053	0.058	0.068	53	5.957	6.568	7.588
6	0.077	0.084	0.097	54	6.184	6.819	7.877
7	0.104	0.115	0.132	55	6.415	7.069	8.168
8	0.136	0.150	0.173	56	6.650	7.333	8.471
9	0.172	0.189	0.219	58	7.134	7.866	9.087
10	0.212	0.234	0.270	60	7.634	8.420	9.720
11	0.257	0.283	0.327	62	8.152	8.989	10.384
12	0.306	0.337	0.389	64	8.686	9.578	11.064
13	0.358	0.395	0.456	65	8.960	9.880	11.414
14	0.416	0.458	0.529	66	9.237	10.185	11.766
15	0.477	0.526	0.608	68	9.806	10.813	12.491
16	0.543	0.599	0.691	70	10.391	11.458	13.230
17	0.613	0.675	0.780	72	10.933	12.056	13.927
18	0.687	0.757	0.865	74	11.612	12.804	14.792
19	0.766	0.844	0.975	75	11.928	13.153	15.194
20	0.848	0.935	1.080	76	12.249	13.507	15.603
21	0.935	1.031	1.191	78	12.902	14.227	16.435
22	1.026	1.131	1.307	80	13.572	14.966	17.280
23	1.122	1.237	1.429	90	17.177	18.941	21.870
24	1.223	1.347	1.555	100	21.206	23.384	27.000
25	1.326	1.462	1.689	110	25.659	28.294	32.670
26	1.434	1.581	1.826	120	30.536	33.672	38.900
27	1.546	1.704	1.968	130	35.810	39.488	45.617
28	1.663	1.833	2.118	140	41.564	45.833	52.947
29	1.783	1.966	2.271	150	47.712	52.612	60.800
30	1.909	2.104	2.430	160	54.300	59.877	69.171
31	2.038	2.247	2.596	170	61.300	67.596	78.089
32	2.171	2.394	2.765	180	68.700	75.756	87.480
33	2.309	2.546	2.941	190	76.600	84.468	97.579
34	2.451	2.702	3.122	200	84.800	93.510	108.000
35	2.598	2.864	3.308	210	93.500	103.104	119.108
36	2.748	3.029	3.500	220	102.600	113.138	130.700
37	2.903	3.201	3.698	230	112.200	123.724	142.929
38	3.062	3.376	3.900	240	122.150	134.696	155.605
39	3.226	3.557	4.109	250	132.600	146.220	168.917
40	3.393	3.736	4.320	260	143.350	158.074	182.611
41	3.565	3.930	4.541	270	154.600	170.480	196.942
42	3.741	4.125	4.765	280	166.250	183.326	211.783
				300	190.900	210.508	243.184



Coarse ISO metric thread UNI 4535-64				Fine ISO metric thread UNI 4535-64			
Thread	Pitch	Ø Drilling mm.	Ø Drill point	Thread	Pitch	Ø Drilling mm.	Ø Drill point
M 1,6	0,35	1,321	1,20	M 3	0,35	2,721	2,65
M 1,8	0,35	1,521	1,45	M 4	0,50	3,599	3,5
M 2	0,40	1,679	1,60	M 5	0,50	4,599	4,5
M 2,2	0,45	1,838	1,75	M 6	0,75	5,378	5,2
M 2,5	0,45	2,138	2,05	M 7	0,75	6,378	6,2
M 3	0,50	2,599	2,5	M 8	0,75	7,378	7,2
M 3,5	0,60	3,010	2,9	M 8	1	7,153	7
M 4	0,70	3,422	3,3	M 9	1	8,153	8
M 4,5	0,75	3,878	3,7	M 10	0,75	9,378	9,2
M 5	0,80	4,334	4,2	M 10	1	9,153	9
M 6	1	5,153	5	M 10	1,25	8,912	8,8
M 7	1	6,153	6	M 11	1	10,153	10
M 8	1,25	6,912	6,8	M 12	1	11,153	11
M 9	1,25	7,912	7,8	M 12	1,25	10,912	10,8
M 10	1,5	8,676	8,5	M 12	1,5	10,676	10,5
M 11	1,5	9,676	9,5	M 14	1	13,153	13
M 12	1,75	10,441	10,2	M 14	1,25	12,912	12,8
M 14	2	12,210	12	M 14	1,5	12,676	12,5
M 16	2	14,210	14	M 15	1	14,153	14
M 18	2,5	15,744	15,5	M 15	1,5	13,676	13,5
M 20	2,5	17,744	17,5	M 16	1	15,153	15
M 22	2,5	19,744	19,5	M 16	1,5	14,676	14,5
M 24	3	21,252	21	M 18	1	17,153	17
M 27	3	24,252	24	M 18	1,5	16,676	16,5
M 30	3,5	26,771	26,5	M 18	2	16,210	16
M 33	3,5	29,771	29,5	M 20	1	19,153	19
M 36	4	32,270	32	M 20	1,5	18,676	18,5
M 39	4	35,270	35	M 20	2	18,210	18
M 42	4,5	37,799	37,5	M 22	1	21,153	21
M 45	4,5	40,799	40,5	M 22	1,5	20,676	20,5
M 48	5	43,297	43	M 21	2	20,210	20
M 52	5	47,297	47	M 24	1	23,153	23
M 56	5,5	50,796	50,5	M 24	1,5	22,676	22,5
M 60	5,5	54,796	54,5	M 24	2	22,210	22
M 64	6	58,305	58	M 24	1	24,153	24
M 68	6	62,305	62	M 25	1,5	23,676	23,5
				M 26	1,5	24,676	24,5
				M 27	1,5	25,676	25,5
				M 27	2	25,210	25
				M 28	1,5	26,676	26,5
				M 30	1,5	28,676	28,5
				M 30	2	28,210	28
				M 32	1,5	30,676	30,5
				M 33	2	31,210	31
				M 35	1,5	33,676	33,5
				M 36	1,5	34,676	34,5
				M 36	2	34,210	34
				M 36	3	33,252	33
				M 38	1,5	36,676	36,5
				M 39	3	36,252	36
				M 40	1,5	38,676	38,5
				M 42	1,5	40,676	40,5
				M 45	1,5	43,676	43,5
				M 50	1,5	48,676	48,5



Thread Tables

Whitworth Thread "W" UNI 2709				Fine Whitworth Thread "BSF" UNI 2709			
Thread	Ø External mm.	Ø Drilling	Ø Drill point	Thread	Ø External mm.	Ø Drilling	Ø Drill point
W 1/16"-60	1,588	1,18	1,2	W 3/16"-32	4,762	4,00	4,0
W 3/32"-48	2,381	1,87	1,9	W 7/32"-28	5,556	4,69	4,7
W 1/8"-40	3,175	2,56	2,6	W 1/4"-26	6,350	5,41	5,4
W 5/32"-32	3,969	3,21	3,2	W 5/16"-22	7,938	6,83	6,8
W 3/16"-24	4,762	3,74	3,8	W 3/8"-20	9,525	8,30	8,3
W 7/32"-24	5,556	4,54	4,6	W 7/16"-18	11,113	9,76	9,8
W 1/4"-20	6,350	5,13	5,2	W 1/2"-16	12,700	11,17	11,0
W 5/16"-18	7,938	6,58	6,6	W 9/16"-16	14,288	12,76	12,5
W 3/8"-16	9,525	8,01	8,0	W 5/8"-14	15,875	14,13	14,0
W 7/16"-14	11,112	9,37	9,4	W 3/4"-12	19,050	17,01	17,0
W 1/2"-12	12,700	10,66	10,5	W 7/8"-11	22,225	20,00	20,0
W 9/16"-12	14,288	12,25	12,0	W 1"-10	25,400	22,96	23,0
W 5/8"-11	15,875	13,66	13,5	W 1 1/8"-9	28,575	25,86	26,0
W 3/4"-10	19,050	16,61	16,5	W 1 1/4"-9	31,750	29,04	29,0
W 7/8"-9	22,225	19,51	19,5	W 1 3/8"-8	34,925	31,87	32,0
W 1"-8	25,400	22,35	22,5	W 1 1/2"-8	38,100	35,05	35,0
W 1 1/8"-7	28,575	25,09	25,0	W 1 5/8"-8	41,275	38,22	38,0
W 1 1/4"-7	31,750	28,26	28,0	W 1 3/4"-7	44,450	40,96	41,0
W 1 3/8"-6	34,925	30,86	31,0	W 1 7/8"-7	47,625	44,14	44,0
W 1 1/2"-6	38,100	34,03	34,0	W 2"-7	50,800	47,31	47,5
W 1 5/8"-5	41,275	36,39	36,5	W 2 1/4"-6	57,150	53,08	53,0
W 1 3/4"-5	44,450	39,56	39,5	W 2 1/2"-6	63,500	59,43	59,5
W 1 7/8"-4,5	47,625	42,20	42,0	W 2 3/4"-6	69,850	65,78	66,0
W 2"-4,5	50,800	45,37	45,5	W 3"-5	76,200	71,32	71,5
W 2 1/4"-4	57,150	51,04	51,0				
W 2 1/2"-4	63,500	57,39	57,5				
W 2 3/4"-3,5	69,850	62,87	63,0				
W 3"-3	76,200	69,22	69,5				
Gas "G" Thread UNI 338-66				Conic gas "GC" Thread UNI 339-66			
Thread	Ø External mm.	Ø Drilling mm	Ø Drill point	Thread	Ø maximum drilling	Distance between the conic extremity and measuring line mm.	
G 1/8"-28	9,73	8,68	8,70	Gc 1/8"-28	8,5	max	min.
G 1/4"-19	13,16	11,62	11,75	Gc 1/4"-19	11,5	4,9	3,1
G 3/8"-19	16,66	15,12	15,25	Gc 3/8"-19	15,0	7,3	4,7
G 1/2"-14	20,95	18,86	19,00	Gc 1/2"-14	18,5	10,0	6,4
G 5/8"-14	22,91	20,82	21,00	Gc 3/4"-14	23,5	11,3	7,7
G 3/4"-14	26,44	24,35	24,50	Gc 1"-11	30,0	12,7	8,1
G 7/8"-14	30,20	28,11	28,25	Gc 1 1/4"-11	38,0	15,0	10,4
G 1"-11	33,25	30,59	30,50	Gc 1 3/8"-11	41,0	15,0	10,4
G 1 1/8"-11	37,90	35,24	35,50	Gc 1 1/2"-11	44,5	15,0	10,4
G 1 1/4"-11	41,91	39,25	39,50	Gc 2"-11	56,0	18,2	13,6
G 1 3/8"-11	44,32	41,66	41,50	Gc 2 1/2"-11	72,0	21,0	14,0
G 1 1/2"-11	47,80	45,14	45,00	Gc 3"-11	85,0	24,1	17,1
G 1 5/8"-11	51,32	48,67	48,50				
G 1 3/4"-11	53,75	51,08	51,00				
G 2"-11	59,61	56,95	57,00				
G 2 1/4"-11	65,71	63,05	63,00				
G 2 1/2"-11	75,18	72,52	72,50				
G 2 3/4"-11	81,53	78,87	79,00				
G 3"-11	87,88	85,22	85,50				
G 3 1/4"-11	93,98	91,32	91,50				
G 3 1/2"-11	100,33	97,67	97,50				
G 3 3/4"-11	106,68	104,02	104,00				
G 4"-11	113,03	110,37	110,50				



Standard American Thread "NC" and "UNC"					Fine American Thread "NF" and "UNF"				
Thread	Ø External mm.	Ø Drilling		Ø Drill point	Thread	Ø externo mm	Ø Drilling		Ø Drill point
		min	max				min	max	
UNC No. 1-64	1,854	1,425	1,582	1,5	UNF No. 0-80	1,524	1,181	1,306	1,3
UNC No. 2-56	2,184	1,694	1,872	1,8	UNF No. 1-72	1,854	1,473	1,613	1,6
UNC No. 3-48	2,515	1,941	2,136	2,05	UNF No. 2-64	2,184	1,755	1,913	1,9
UNC No. 4-40	2,845	2,156	2,383	2,3	UNF No. 3-56	2,515	2,024	2,174	2,1
UNC No. 5-40	3,175	2,487	2,697	2,6	UNF No. 4-48	2,845	2,271	2,438	2,35
UNC No. 6-32	3,505	2,647	2,909	2,75	UNF No. 5-44	3,175	2,550	2,713	2,65
UNC No. 8-32	4,166	3,307	3,515	3,4	UNF No. 6-40	3,505	2,817	2,995	2,9
UNC No. 10-24	4,826	3,680	3,960	3,8	UNF No. 8-36	4,166	3,401	3,561	3,5
UNC No. 12-24	5,486	4,341	4,575	4,5	UNF No. 10-32	4,826	3,967	4,125	4
UNC 1/4"-20	6,350	4,976	5,232	5,1	UNF No. 12-28	5,486	4,503	4,466	4,6
UNC 5-16"-18	7,938	6,411	6,680	6,5	UNF 1/4"-28	6,350	5,367	5,519	5,4
UNC 3/8"-16	9,525	7,805	8,087	8	UNF 5-16"-24	7,938	6,792	6,957	6,7
UNC 7/16"-14	11,112	9,149	9,451	9,3	UNF 3/8"-24	9,525	8,379	8,545	8,4
UNC 1/2"-13	12,700	10,584	10,896	10,7	UNF 7/16"-20	11,112	9,738	9,921	9,8
UNC 9/16"-12	14,288	11,996	12,319	12	UNF 1/2"-20	12,700	11,326	11,509	11,4
UNC 5/8"-11	15,875	13,376	13,709	13,5	UNF 9/16"-18	14,288	12,761	12,954	12,8
UNC 3/4"-10	19,050	16,299	16,644	16,5	UNF 5/8"-18	15,875	14,348	14,542	14,4
UNC 7/8"-9	22,225	19,169	19,530	19,3	UNF 3/4"-16	19,050	17,330	17,534	17,4
UNC 1"-8	25,400	21,963	22,339	22,2	UNF 7/8"-14	22,225	20,261	20,477	20,3
UNC 1 1/8"-7	28,575	24,648	25,039	25	UNF 1"-12	25,400	23,109	23,338	23,2
UNC 1 1/4"-7	31,750	27,823	28,214	28	UNF 1 1/8"-12	28,570	26,284	26,513	26,4
UNC 1 3/8"-6	34,925	30,343	30,800	30,6	UNF 1 1/4"-12	31,750	29,459	29,688	29,6
UNC 1 1/2"-6	38,100	33,518	33,975	33,7	UNF 1 3/8"-12	34,920	32,634	32,863	32,7
					UNF 1 1/2"-12	38,100	35,809	36,038	35,9
"NPS" American Pipe Thread					"NPT" American Conic Thread				
Thread	Ø External mm.	Ø Drilling mm.	Ø Drilling mm.		Thread	Ø Drilling mm.			
NPS 1/8"-27	10,27	8,92	8,9		NPS 1/8"-27	8,5			
NPS 1/4"-18	13,57	11,54	11,5		NPS 1/4"-18	11,0			
NPS 3/8"-18	17,05	15,03	15,0		NPS 3/8"-18	14,5			
NPS 1/2"-14	21,22	18,61	18,5		NPS 1/2"-14	18,0			
NPS 3/4"-14	26,56	23,95	24,0		NPS 3/4"-14	23,0			
NPS 1"-11½	33,22	30,05	30,0		NPS 1"-11½	29,0			
NPS 1¼"-11½	41,98	38,80	39,0		NPS 1¼"-11½	38,0			
NPS 1½"-11½	48,05	44,87	45,0		NPS 1½"-11½	44,0			
NPS 2"-11½	60,09	56,91	57,0		NPS 2"-11½	56,0			
NPS 2½"-8	72,70	68,13	68,0		NPS 2½"-8	67,0			
NPS 3"-8	88,60	84,04	84,0		NPS 3"-8	83,0			